U.S. Army Corps Of Engineers

Formerly Used Defense Sites Program

FUDS

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Cost-To-Complete (CTC) Estimate

Handbook

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Cost-To-Complete Estimate Handbook for the Formerly Used Defense Site (FUDS) Program

1. **Introduction**. This Handbook was developed for U.S. Army Corps of Engineers (USACE) personnel at all levels engaged in the development, review, and archiving of cost-to-complete (CTC) estimates for Formerly Used Defense Sites (FUDS) projects. These estimates are used as the basis for the environmental liabilities reported in the Army's financial statements for the FUDS Program. This Handbook contains the most relevant and current information needed by USACE Districts regarding the CTC process.

2. Background

2.1. According to Public Law 101-576, "Chief Financial Officers Act of 1991", each executive agency shall prepare and submit to the Director of the Office of Management and Budget (OMB) a financial statement for the preceding fiscal year. The CFO Act requires financial statements prepared by an agency be audited by the Inspector General in accordance with applicable generally acceptable government auditing standards and further requires the Inspector General to submit a report to the head of the auditing agency.

2.2. Environmental liabilities and disposal liabilities are reported on Note 14, "Environmental Liabilities and Environmental Disposal Liabilities", of the Department of Defense (DoD)-wide and the individual Service-wide balance sheets. Contingent liabilities are reported as part of Note 16, "Commitments, and Contingencies". Environmental liabilities include estimated amounts for future cleanup of contamination resulting from waste disposal methods, leaks, spills, and other past activities that have created a public health or environmental risk.

2.3. Environmental cost estimators normally prepare CTC estimates that satisfy budgetary requirements. These estimates emphasize project validity and significance, not documentation of the methodology used to generate the estimates. However, Army management uses the budgetary estimates to report environmental liabilities on the Army financial statements. Because environmental budgetary estimates are used for financial statement reporting, the estimates are subject to financial management and accounting standards and are subject to audit. Financial management and accounting standards require supporting documentation for cost estimates.

2.4. Several recent audits of Army's annual financial statements identified serious deficiencies with the preparation and documentation of CTC estimates. Specifically, auditors concluded that the Army did not maintain adequate audit trails to ensure documentation was readily available to support the underlying assumptions of estimates and did not routinely document Supervisory Reviews or implement adequate control programs to ensure the reliability

and accuracy of the estimates.

2.5. As a result of these audits, the Department of the Army Comptroller has imposed a rigorous set of requirements and an aggressive schedule to obtain an unqualified audit opinion of its financial statements. The schedule requires that the Army's financial statements achieve a qualified audit opinion by the end of fiscal year 2007 and an unqualified opinion by FY2010. A qualified audit opinion means that some limitations exist with parts of the agency's financial statements, such as an inability to gather certain information. This is compared to an unqualified opinion, which basically states that the auditors feels the agency followed all accounting rules appropriately and that the financial statements are an accurate representation of the agency's financial condition.

3. Statutory Requirements

3.1. Chief Financial Officers (CFO) Act

3.1.1. In 1990, Congress passed the CFO Act that calls for the federal government to establish a foundation of basic financial management practices that are common and considered vital in the private sector. It directs the OMB to provide overall direction and leadership to the executive branch on financial management matters by establishing financial management policies and requirements.

3.1.2. The purpose of the CFO Act is to improve general and financial management practices in the federal government by requiring the development of an integrated financial management system, including financial reporting and internal controls. The Act also established a pilot project whereby certain agencies, including the Army, were also required to prepared auditable, commercial-style financial statements for the Fiscal Year (FY) 1992. The OMB extended this requirement through FY 1995.

3.2. Government Performance and Results Act (GPRA)

3.2.1. While the CFO Act established the foundation for improving management and financial accountability among the agencies, the GPRA of 1993 is aimed more directly at improving an agency's program performance. The GPRA forces a shift in the focus of federal agencies away from such traditional concerns as staffing and activity levels toward a single overriding issue – results.

3.2.2. The GPRA requires first that agencies consult with Congress and other stakeholders to clearly define agency missions. It requires that agencies establish long-term strategic goals, as well as annual goals. Agencies must then measure their performance against their goals and report the results to the public. Within the environmental arena, the Army's performance is measured against the Department of Defense Goals for DERP. The FUDS Program has internal performance indicators that are identified in Chapter 7 of Engineer Regulation (ER) 200-3-1, FUDS Program Policy.

3.3. Government Management Reform Act (GMRA). In 1994, Congress passed the GMRA, requiring all federal agencies, including the Army, to annually produce auditable financial statements beginning in FY1996. As the accounting service for DoD agencies, the Defense Finance and Accounting Service (DFAS) prepares the Army's Financial Statements. The Inspector General, DoD (DoDIG), is responsible to audit the Army's financial statements in accordance with applicable generally accepted government accounting standards and submit a report to the Auditor General, Department of the Army.

3.4. Federal Financial Management Improvement Act (FFMIA)

3.4.1. The FFMIA of 1996 advances federal financial management by ensuring that federal financial management systems can and do provide reliable, consistent disclosure of financial data. Further, the FFMIA requires these management systems do so on a basis that is uniform across the federal government, is consistent from year-to-year, and uses professionally-accepted accounting standards.

3.4.2. The FFMIA builds on the GMRA requirement for agencies to publish annual audited financial reports. It provides the basis for ongoing use of reliable financial information in program management and in oversight by the President, Congress, and the public.

3.4.3. The FFMIA impacts the Army in the following ways:

3.4.3.1. The Army is required to implement and maintain systems that comply substantially with:

3.4.3.1.1. Federal financial management system requirements.

3.4.3.1.2. Applicable federal accounting standards, and

3.4.3.1.3. The Standard General Ledger at the transaction level.

3.4.3.2. DoDIG is required to report on the Army's compliance with the three above requirements as part of financial statement audit reports.

3.4.3.3. The Army is required to determine, based on the audit report and other information, whether it's financial management systems (the FUDS Management Information System [FUDSMIS] for the FUDS Program) complies with the FFMIA. If it does not, the Army is required to develop remedial plans and file them with OMB.

4. **Reporting Guidance**

4.1. DoD Financial Management Regulation (FMR)

4.1.1. DoD Regulation 7000.14-R, "DoD Financial Management Regulation", Volume 4, Chapter 13, prescribes accounting policies and principles for measuring and recognizing DoD liabilities associated with the disposition of property, structures, equipment, munitions, and

weapons. The FMR also prescribes policy for measuring and recognizing the environmental liabilities associated with corrective actions, the future closure of facilities on active installations, and for the environmental response actions at operational test and training ranges on active installations.

4.1.2. FMR Volume 4, Chapter 14, prescribes the accounting policies and principles for measuring and recognizing DoD liabilities associated with the containment, treatment, or removal of contamination that could pose a threat to public health and the environment. This portion of the FMR also prescribes the accounting policy for accrued environmental restoration costs for general property, plant, equipment, and stewardship land. Furthermore, it provides policy for accrued environmental restoration cost for properties with potentially responsible parties (PRP).

4.2. Defense Environmental Restoration Program (DERP) Management Guidance. The DERP Management Guidance provides program implementation information for environmental restoration at active installations, facilities subject to Base Realignment and Closure, and Formerly Used Defense Sites. This guidance document also provides requirements for CTC estimates and financial reporting of environmental restoration liabilities that use Environmental Restoration funds.

4.3. Engineer Regulation 200-3-1, Formerly Used Defense Sites (FUDS) Program Policy.

4.3.1. The FUDS ER 200-3-1 establishes the overarching USACE policy for management and execution of the FUDS program and takes precedence over previous USACE FUDS program policy and guidance. This regulation provides policy and guidance within USACE for the planning, programming, budgeting, execution, management, and reporting of all activities associated with FUDS properties and projects.

4.3.2. Appendix E of ER 200-3-1 establishes criteria and standards for development, review, and reporting of CTC estimates that support project management and upward reporting for the Environmental Restoration Liability, budget submittals, the Annual Report to Congress (ARC), and the DoD In-Progress Reviews.

5. **Environmental Liabilities**

5.1. Definition

5.1.1. Environmental liabilities include estimated amounts for future cleanup of contamination resulting from waste disposal methods, leaks, spills, and other past activities that have created a public health or environmental risk. Neither budget activities nor the availability of funding is a determining factor in recognizing environmental liability. Environmental liability estimates and reporting are mandatory regardless of whether the liability appears in budgets or requires future funding.

5.1.2. Environmental liabilities are divided into two distinct categories: "environmental restoration" and "environmental deposal". Note 14 of the financial statement entitled "Environmental and Disposal Activities" is the applicable note to report environmental liabilities.

5.2. Reporting of Environmental Liabilities

5.2.1.1. Each fiscal year, the Deputy Assistance Secretary of the Army (Financial Operations) issues a request for the actual and contingent liabilities in the area of environmental restoration, non-environmental, Judgment Fund, and all other liabilities not reported via automated systems. DoD guidance requires the Army and USACE to calculate the CTC estimate for each cleanup program category and use these values as the basis for the environmental liability reported in the Note 14.

5.2.1.2. CTC estimates and the values reported in the annual financial statements for environmental liabilities must be consistent with each other and able to withstand an audit. In addition, these values must be consistent with the estimates used to develop the entries into FUDSMIS and in any reports provided to outside entities, such as the DERP Annual Report to Congress.

6. **Cost-to-Complete (CTC) Estimates**

6.1. Achieving Auditable Estimates. When the DoD Inspector General audited the financial records of the Army and USACE for FY2002[1], they identified critical deficiencies in the management of the CTC process. These deficiencies were in the four broad areas of: (a) Documentation, (b) Supervisory Review, (c) Quality Assurance/Quality Control, and (d) Feeder System Compliance. The Army committed to correcting these deficiencies and developed a Corrective Action Plan[2]. A stated objective of the Plan was to "implement these review procedures immediately to ensure cost-to-complete development efforts during fiscal year 2005 provide sound and auditable estimates of our financial liabilities" and further, to be able to obtain a qualified audit opinion by the end of FY2007.

6.2. An Overview of the CTC Process.

6.2.1. The term CTC refers to the estimated cost for cleanup of environmental contamination and response actions to address military munitions, including both the munitions of explosive concern (MEC) and munitions constituents (MC). By definition, CTC includes costs in the current fiscal year (CFY), the budget year (BY), and all future years. CTC estimates are used for several purposes including to support the planning, programming, budgeting and execution process; to estimate environmental liabilities; to track cost avoidance measures implemented by the USACE; and to report future program requirements. CTC estimates are

[1] *Environmental Liabilities Required To Be Reported on Annual Financial Statements* (Report Number D-2004-080), Inspector General, Department of Defense, 5 May 2004 (See Appendix I.)
[2] DAIM-ZA Memorandum, 18 November 2004, Subject: Improving the Reporting of Financial Liabilities. (See Appendix J.)

subject to financial management and accounting standards and to subsequent financial audit.

6.2.2. CTC estimates form the basis of the environmental liabilities reported in the USACE Annual Financial statement in compliance with the CFO Act. In addition, CTC estimates must comply with DoD FMR 7000.14-R. This regulation requires documentation of: data sources; methods of estimating; and management review of CTC estimates. The FMR stipulates that CTC estimates are subject to audit. Therefore, information used to develop CTC estimates for the USACE environmental cleanup programs is subject to audit by the DoD Inspector General (IG).

6.2.3. USACE guidance requires USACE Districts prepare annual CTC estimates for all eligible and approved or pending[3] FUDS projects that have not reached project completion. For the purpose of this Handbook, Project Completion is achieved when:

6.2.3.1. Building Demolition and Debris Removal (BD/DR) projects are designated as No DoD Action Indicated (NDAI) and recorded in the FUDSMIS.

6.2.3.2. Hazardous, Toxic, and Radioactive Waste (HTRW), Containerized HTRW (CON/HTRW), Military Munitions Response Program (MMRP), and Potentially Responsible Projects[4] (PRP) project types achieve regulatory concurrence and this accomplishment has been recorded in FUDSMIS[5].

6.3. Responsibilities. The following table identifies the office elements and individuals responsible for the preparation, review, approval, and validation of CTC estimates.

[3] Approved projects are those included in the Inventory Project Report (INPR), recommended by the District for inclusion in the FUDS program, and ultimately approved by the Division or HQUSACE. Refer to ER 200-3-1, Appendix B for a discussion of the INPR process. Only approved projects are reported in the FUDS Environmental Liability Report. However USACE policy is to develop CTC estimates for both pending and approved projects.

[4] USACE focuses its PRP efforts toward settlement of any DoD CERCLA liability with other PRPs, rather than on conducting response actions at properties with other PRPs. Therefore, CTC costs for a PRP project will normally only include those phases required to determine USACE's fair and equitable settlement amount. Only in cases where USACE undertakes the response action will the CTC estimate include all phases required for project completion. Refer to ER 200-3-1, Chapter 5.

[5] FUDS Project CTC estimates do not include costs for FUDS pseudo projects. FUDSMIS uses pseudo projects to manage and track expenses for property level non-response activities, such as the Preliminary Assessment (PA), Restoration Advisory Boards (RAB), Technical Review Committees (TRC), Technical Assistance for Public Participation (TAPP), and Management and Support (M&S). Estimates are based on historical information and the project manager's experience. Pseudo projects are not identified in the Inventory Project Report. Refer to ER 200-3-1, Appendix F.

Role	Responsible Office Element	Responsible Individual	Comment
Prepares CTC Estimate	USACE District Project Delivery Team (PDT).	PDT Team Member assigned by the USACE FUDS Project Manager (PM).	The PDT is a multidisciplinary team brought together to support the USACE District PM for the purpose of executing the FUDS project. Membership on the team includes cost estimators, Contractors, USACE Centers of Expertise (CX), or others trained in auditing principles and experienced in developing CTC estimates.
Conducts Quality Control Review	USACE District Quality Control team.	USACE District FUDS PM, supported by PDT members.	The PM is the lead for Quality Control on the FUDS Project. This is part of the broader role of the PM, as PDT lead, for responsibility of all aspects of project planning, programming, execution, and reporting.
Conducts Supervisory Review	USACE District FUDS Program Manager (PgM)	USACE District FUDS Program Manager (PgM)	The PgM is the functional equivalent of the supervisor of the PM, and as such, performs the Supervisory Review of each FUDS project estimate.
Conducts Quality Assurance Review	USACE Division	USACE Division FUDS Program Manager (PgM)	The Division FUDS PgM performs a quality assurance Review of the estimating process; may be supported by USACE CXs.
Approves Estimates	Headquarters USACE (CEMP-DE)	HQUSACE FUDS Program Manager	HQUSACE FUDS PgM approves estimates used for reporting the FUDS environmental liabilities.
Validates Estimates	Assistance Chief of Staff for Installation Management (ACSIM)	Director of Environmental Programs	ACSIM collects and validates environmental liabilities submitted by USACE; checks to determine if all necessary program aspects are identified and reported.

6.4. Schedule.

6.4.1. The following table E-1, FUDS Schedule of Annual Cost-to-Complete Estimate Development and Update, from ER 200-3-1 reflects the annual timeline for the CTC estimating process.

Table E-1
FUDS Schedule of Annual Cost-to-Complete Estimate Development and Update

	ACTIVITY	INITIATION DATE	COMPLETION DATE
	The District queries FUDSMIS and provides a list of projects to Divisions	Middle Of July	1st Week In October
	Division assigns estimate preparation responsibilities to Districts and CXs	Last Week In July	2nd Week In October
District Responsibility	Districts prepares CTC estimates for assigned projects, performs QC Review, incorporates comments from QC Review, and updates information in FUDSMIS.	Last Week In July	1st Week In December
	Districts submit CTC estimates to CXs for QA Review.	2nd Week In November	2nd Week In December
	District performs QC Review on CX developed estimates and provides comments to be incorporated into estimates.	1st Week In October	1st Week In January
CX Responsibilities	CXs prepare CTC estimates For assigned projects.	Last Week In July	1st Week In December
	CXs submit CTC estimates to Districts for QC Review.	Early October	1st Week In December
	Incorporated QC comments, complete final estimate revisions and enter revised estimates into FUDSMIS, and provide estimates to Districts.	1st Week in December	1st Week In February
	CXs perform QA of representative sample of CTC estimates.	1st Week In February	1st Week In March
	All estimates QA'ed and QA'ed, entered into FUDSMIS, and available for HQUSACE use.	NA	Last Week in March
	Divisions, or CXs as requested by Divisions, submit After Action Report to HQUSACE.	1st Week March	1st Week In April
	CEMP-DE prepares POM exhibits and Environmental Liability Report.	NA	1st Week In April

6.4.2. The following table reflects the schedule for CTC estimates being developed during the remainder of FY2005.

	ACTIVITY	COMPLETION DATE
District Responsibility	Districts prepare CTC estimates for assigned projects; perform QC and Supervisory Reviews; incorporate comments from QC Review; update phase cost information In FUDSMIS; and upload supporting project documents to PIRS.	7 March 2005
	Districts perform Supervisory Review of CX Contractor developed estimates and submit comments to CX for incorporation.	9 March 2005
CX Responsibilities	CX Contractor completes CTC estimates for assigned projects.	26 Jan 2005
	CXs complete the QC Review of Contractor prepared estimates.	16 Feb 2005
	CXs upload FUDS Project phase cost information to FUDSMIS.	16 Feb 2005
	CXs submit completed QC Checklists to Districts who perform the Supervisory Review.	23 Feb 2005
	CXs incorporate District Supervisory Review comments; complete final estimate revisions; enter revised estimates into FUDSMIS; and provide estimates to Districts.	16 March 2005
Divisions perform a Quality Assurance Review of a statistically representative sample of CTC Estimates. (May be assisted by the CXs.)		1 April 2005
For all estimates: QC Review, Supervisory Review, and Quality Assurance Reviews are completed; costs entered into FUDSMIS; data is available for HQUSACE use.		1 April 2005
CEMP-DE prepares POM exhibits and Environmental Liability Report.		6 April 2005
Divisions submit After Action Report to HQUSACE. (May be assisted by the CXs.)		15 May 2005

6.5. Assignment of Estimate Development Responsibility.

6.5.1. Assignment of Estimate Development Responsibility within FUDSMIS occurs each year between July and October. FUDSMIS assigns a “default” estimate preparation responsibility for all approved and pending projects that have not achieved “Project Completion” as discussed in paragraph 6.2.3. above to either the USACE District or the CXs based on the status of project phases in the Life Cycle Plan.

6.5.2. By default, estimate development responsibility is assigned to the District for projects that are being actively managed. This is characterized in FUDSMIS by the completion of the RI/FS or EE/CA phases for HTRW and MMRP projects or completion of the Removal Design (RmD) phase in FUDSMIS for CON/HTRW and BD/DR projects. Also assigned to Districts by default are all PRP projects.

6.5.3. Typically, projects are assigned to the CXs by default if they are not being actively managed or are "pre-decisional". These projects are characterized in FUDSMIS by the RI/FS or EE/CA phases being Underway or Future for HTRW and MMRP projects and the RmD phase being Underway or Future for CON/HTRW and BD/DR projects. By USACE policy, RACER will be used to develop CTC estimates for these "pre-decisional" projects. (See ER 200-3-1, Appendix E.) By default, estimate development responsibility is assigned to the MM CX for all MMRP/CWM projects.

6.5.4. Districts FUDS Program Managers have until 1 October each year to either accept the default assignment or reassign in FUDSMIS the estimate preparation responsibilities, supported by a narrative statement providing rationale for the change. Before making an estimate preparation assignment to the CX for a project with costs in the CY or BY, Districts should carefully consider where the project is in the decision process. For instance, if a HTRW or MMRP project has a completed or nearly completed RI/FS, it is appropriate for the District to prepare the estimate because of the information they have regarding what has been accomplished and the future direction of the project. This level of knowledge will often provide the basis for developing a detailed bottom-up estimate using a tool such as MCACES. In these cases, use of a parametric estimate may not be the best tool. The same can be said of a BD/DR or CON/HTRW project with a completed or nearly completed RmD.

6.5.5. When the estimate reassignments are completed, the District Program Manager locks-in the assignments by clicking the "Finalize" button on the Estimate Assignment Screen in FUDSMIS. On 1 October, the assignments are "Finalized" by FUDSMIS whether the Program Manager has made changes or not. When finalized, the list becomes available to the Division FUDS Program Manager for review, revision, and approval.

6.5.6. Division FUDS Program Manages have until 6 October each year to either accept or override the District assignments in FUDSMIS. The Divisions can accept all District assignments or disapprove and reassign CTC responsibilities on a project-by-project basis. When completed, the Division PgM "Finalizes" the assignments in FUDSMIS. On 6 October, FUDSMIS finalizes the assignments whether or not the PgM has clicked the "Finalize" button. The responsibilities will be assumed approved each year on 6 October.

6.5.7. Once this list is finalized in early October, it will represent the "locked" universe of all projects requiring CTC estimates that will be reported in April of the following year in the Environmental Liability Report (ELR). New projects entered into FUDSMIS or existing projects that are un-NDAI'ed subsequent to locking this list in FUDSMIS will **not** be included in the ELR developed by USACE in April. The HQUSACE FUDS Program Manager approves exceptions to this policy. Locking this list is the only way to make certain that for each project reported in the ELR, a CTC estimate has been assigned, developed, QC and Supervisory

Reviewed, and been included in the Quality Assurance Review. New or un-NDAI'ed projects will be estimated, reviewed, and reported in the next CTC cycle.

6.6. Development of Estimates.

6.6.1. General

6.6.1.1. The District FUDS Project Manager (PM), as head of the Project Delivery Team (PDT), leads a multidisciplinary team brought together to support the planning, programming, budgeting, execution, and reporting for the FUDS project. Membership on the team should encompass all disciplines needed for project performance.

6.6.1.2. The Project Manager will assign estimate development responsibility to a member of the team. This could be an in-house Cost Engineer, a contractor, a USACE CX member, or others that are knowledgeable of the project, trained in auditing principles, and experienced in developing CTC estimates. Estimates will be developed and/or updated in current year dollars. Refer to ER 200-3-1, Appendix E, Sections E-6 through E-9.

6.6.1.3. Appendix B of this Handbook contains the guidance document entitled *"Instructions For Developing FUDS CTC Estimates"*, October 2004. These Instructions provide directions and systematic procedures for developing CTC estimates with the RACER 2005 software. Following these instructions will allow Districts to develop estimates that are creditable, defensible, and able to pass the Quality Control, Supervisory, and Quality Assurance Reviews discussed below. Further, in order to use the software utilities discussed below to upload phase cost information into FUDSMIS, the phase naming conventions and other requirements outlined in these Instructions must be strictly followed.

6.6.1.4. Estimates Developed by the Centers of Expertise.

6.6.1.4.1. Estimates assigned to the HTRW or MM Centers of Expertise will be developed either by CX cost engineers or under contract. In-house CX or contract estimators will request from the District FUDS Program Manager specific information that will be the basis for estimate development. Such information will include the year and phase for the estimate to begin. Estimates for HTRW, BD/DR and CON/HTRW projects will be prepared using past estimates, if available, and all project file documents such as the INPR, SI reports, etc. Estimates will be developed that include all appropriate project phases for the project category as shown in ER 200-3-1, Table 4-4.

6.6.1.4.2. Outyear MMRP projects assigned to the HTRW CX will be developed using the Military Munitions Range data in FUDSMIS. These estimates will be developed using an automated batch process that will ensure all estimates are developed with the approved set of assumptions.

6.6.1.4.3. The MM CX will develop the CTC estimates for MMRP Chemical Warfare Materials (CWM) projects. The Chemical Warfare Material Scoping and Security Study addressed multiple issues concerning the current status, probable future remediation efforts, and costs associated with the future liabilities. The estimates, prepared via contract, will be

developed based on the project specific recommendations being made as part of the Final Volume II Report for the CWM Scoping and Security Study. Following an MM CX QC Review, the MMRP CWM estimates and Cost Over Time (COT) reports will be available for District review and comment on the CWM Scoping and Security Study project web page, www.fudscwmstudy.com.

6.6.1.4.4. All estimates assigned to the HTRW CX will be developed using the latest version of RACER. Following an internal QC Review, the estimates consisting of the RACER mdb files and COT reports will be provided to the Districts by way of an ftp site for the Districts to perform the Supervisory Review. The HTRW CX will record their Quality Control Review using the top half of the Quality Control/Supervisory Review Checklist provided in Appendix E. The completed and signed QC Checklist will be overnight mailed to the District Program Manager. At this time, the HTRW CX will provide a phase table to ITL-Vicksburg for uploading of phase cost information into the life cycle plan in FUDSMIS. This upload process overwrites the existing life cycle plan for the project, including the Budget Year.

6.6.1.4.5. The District will perform the Supervisory Review of each project estimate. The District will use the Supervisory Review portion of the QC/Supervisory Checklist provided by the CX and used to record their Supervisory Review of the CX prepared estimates. Supervisory Review comments will be addressed by the CX and, if necessary, the estimates revised. Once the estimates have passed both the Quality Control and Supervisory Reviews, the CX will provide the final estimates to the District on CDs or by project web page.

6.6.1.4.6. If the District revises the total cost for a project in the LCP in FUDSMIS after the estimate passed the QC/Supervisory Reviews, but before the April data download for the ELR, the District must also revise the estimate to be consistent with the CTC in FUDSMIS. The District will then need to re-perform the QC and Supervisory Reviews on these estimates. If this is not done, the estimate, if selected, will not pass the Quality Assurance Review.

6.6.2. Cost Estimating Systems – How to select the correct estimating tool.

6.6.2.1. The use of automated cost estimating systems enhances the efficiency, accuracy, and credibility of CTC estimates. Automation assists in the standardization of estimating procedures and provides estimates that are easily reviewed, revised, and adapted to new projects or situations. However, automation is just a tool and must not take the place of professional cost engineering knowledge or judgment. The cost estimator should always be knowledgeable of the system's capabilities and limitations in relation to a project. The cost estimator must be especially careful when using models and when adapting cost estimates to new projects to ensure that there are neither duplications nor omissions in the estimate. Output should be checked for reasonableness, and assumptions and methodology should be verified and documented. The best-automated system is not a replacement for good estimator judgment. Available cost estimating software programs to develop FUDS CTC estimates are discussed below.

6.6.2.2. *Remedial Action Cost Engineering and Requirements® (RACER®).*

6.6.2.2.1. RACER is a parametric estimating tool that can develop FUDS CTC estimates for all project phases, from characterization through final closeout. At a minimum, RACER must be used to develop CTC estimates for FUDS HTRW and MMRP projects before the decision document is finalized and for CON/HTRW and BD/DR projects before the design is completed.

6.6.2.2.2. RACER was accredited in accordance with DoD Instruction 5000.61, Modeling and Simulation Verification, Validation, and Accreditation (VV&A). RACER provides an automated, consistent, and repeatable method to estimate and document the program costs for environmental cleanup of contaminated sites, and to provide a reasonable cost estimate for program funding consistent with the information available at the time of the estimate preparation.

6.6.2.2.3. RACER is used primarily to develop budgetary cost estimates in the early stages of project response actions when details are limited or not available. RACER uses generic cost models of cleanup systems based on historical project information and technologies to develop costs for response actions. The estimator should modify these generic models to reflect actual project conditions. These tailored models are then quantified and pricing is updated in accordance with the budget year costing data using a commercial environmental unit price book as a base. RACER will estimate costs for studies, design, remedial action, operation and maintenance, and long-term management. The most recent version of RACER should be used by USACE when developing FUDS CTC estimates, unless otherwise approved by HQUSACE.

6.6.2.3. *Micro Computer-Aided Cost Engineering System® (MCACES®).* MCACES is the standard detailed cost estimating system used by all District Cost Engineering offices. Primarily, it is used for cost estimates where detailed design information is available. MCACES includes a Unit Price Book (UPB) database that contains cost information on more than 21,000 unit price line items for construction labor, equipment, and material.

6.6.2.4. *Excel Spreadsheets*. Excel provides a powerful tool for development of estimates. It is used for both less complex projects and for CWM projects for which models do not exist in RACER. Since the structure of an Excel spreadsheet in not standardized, risk exists that the estimates will not be properly constructed or documented. Documentation, in the form of notes and explanation, must be entered into cells in the spreadsheet to support the requirements for replicablility and traceability from the source document as well as provide narratives to support unit prices, quantities, and formulas. Because of these limitations, Excel spreadsheets should only be used for simply projects where the sophistication of RACER or MCACES is not appropriate or for CWM projects where RACER models are not available.

6.6.3. Tools to Facilitate the CTC Estimate Development and Archiving. Two stand-alone utilities were developed during FY2004/05 to facilitate the uploading of RACER phase cost information into FUDSMIS and for archiving of RACER estimates to the Project Information Retrieval System (PIRS). These utilities are described below.

6.6.3.1. RACER Batch Export Utility. A RACER.mdb file is required to be uploaded to PIRS to archive the estimate for audibility. If more than one project was estimated within a single RACER.mdb database, the Export function of RACER must be used to produce a separate database file for each project within the database. This can become time consuming and result in errors that could affect the audibility of the project file. EarthTech, the current licensee of RACER, was contracted to produce a stand-alone Batch Export Utility that extracts information from a single FUDS CTC project estimate in a RACER database and save this information in an export file. The export file containing the single project estimate can then be submitted to PIRS for archiving. Instructions on the use of this utility are included in Appendix C.

6.6.3.2. RACER Post Processor Utility. This is a stand-alone utility to extract from the RACER estimate a table that includes the phase costs for each project in the estimate. Although similar, this stand-alone utility is different than the utility that is a menu selection in RACER 2005[6]. The stand-alone utility will create an Access database file containing a table named XFUDSMIS. This table will contain values for the FUDS Property Number, FUDS Project Number, Phase, Executing FOA, Year, In-House Amount, and Contract Amount. Instructions on the use of this utility are included in Appendix D.

6.7. Quality Review of CTC Estimates.

6.7.1. Overview.

6.7.1.1. Districts use a Quality Management Plan to identify the details and frameworks of building quality into their process of developing FUDS Project CTC estimates. They then develop the CTC estimates according to the approved plan, adapting to changing conditions and modifying their plans to ensure CTC estimate development quality objectives are met. Districts perform independent Quality Control Reviews and Supervisory Reviews of each estimate to ensure that the stated quality objectives are being met. The objective of the Quality Control Review is to review the estimate from a technical point-of-view, to ensure that the estimate is properly constructed, and that the person developing the estimate is qualified by experience and training. The objective of the Supervisory Review is to ensure the estimate reflects what is known about the project and is representative of the project.

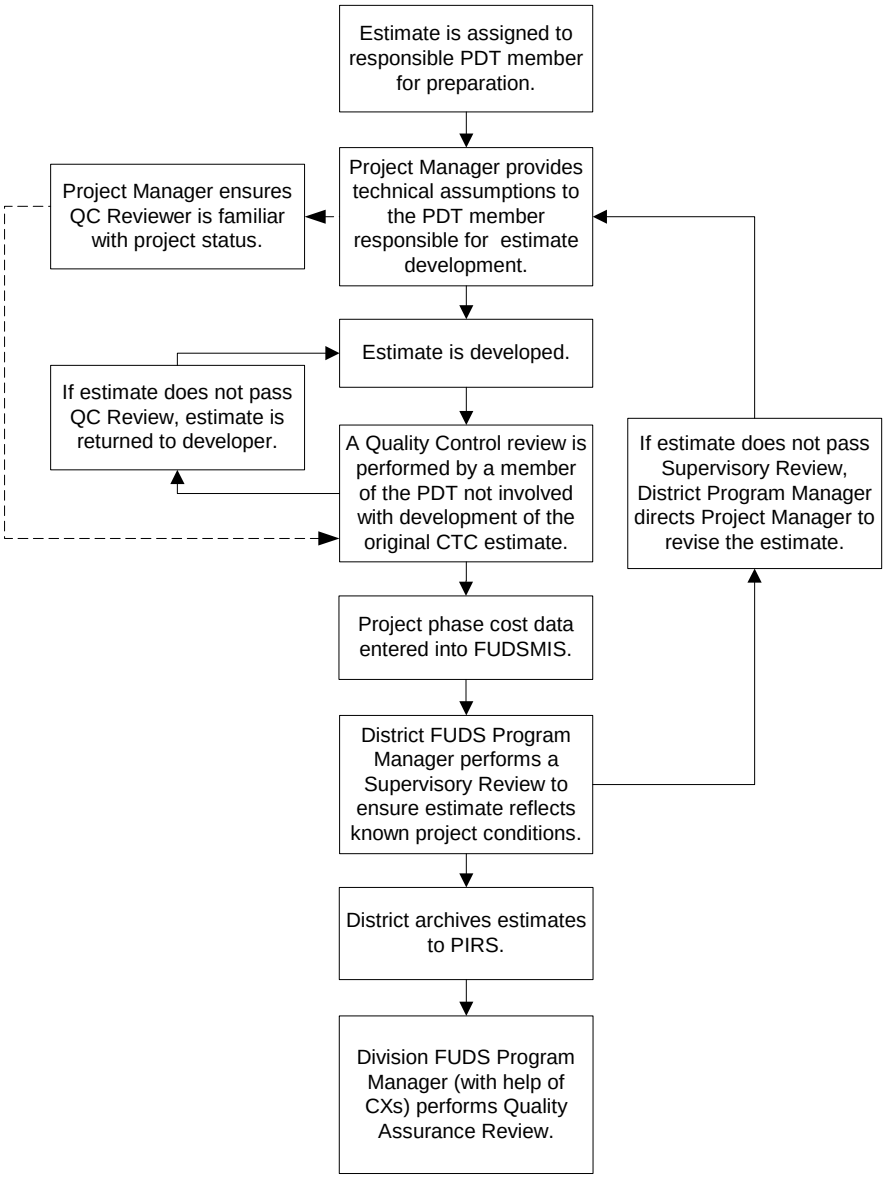
6.7.1.2. Divisions conduct periodic in-progress and After Action Quality Assurance Reviews to evaluate the Districts Quality Control processes, to share lessons learned, and to facilitate continuous improvement. During these reviews, Divisions use management oversight and verification to identify obstacles preventing districts from developing quality CTC estimates. Divisions systematically analyze the District's processes to identify systemic problems affecting the development of CTC estimates. Specific corrective actions are taken to remove these barriers and to incorporate improvements leading to a refinement of the overall quality system.

[6] The Post Processor in RACER 2005 is part of an initiative that will allow RACER estimates for FUDS Projects to be pulled directly into the LCP in FUDSMIS. What is not currently available is the functionality in FUDSMIS to look onto the hard disk or network drive to locate the RACER.mdb file containing the estimate. This functionality is under development and will be available for the FY2006 CTC cycle.

6.7.1.3. Offices performing Quality Control and/or Supervisory Reviews will develop and use a Quality Control and Supervisory Review Plan that identifies the roles and responsibilities, estimate assignment and development requirements, review methods and procedures, archiving procedures, and other relevant steps. Appendix F contains a template for a District Quality Control Plan that may be useful to USACE Districts in their preparation of a District specific plan.

6.7.1.4. The Quality Control Review and Supervisory Review Checklists in Appendix E will be used to record the results of these reviews. Both the Quality Control Review Checklist and the Supervisory Checklist are recorded on the same form to ensure the two reviews will not become separated. Following completion of each review, the reviewer will sign their portion of the form to signify their agreement with the findings represented on the forms.

6.7.1.5. The following process diagram illustrates the framework of estimate assignment, preparation, and review.



6.7.2. Quality Control Review.

6.7.2.1. The Project Manager (PM) is responsible to ensure quality in the developed estimate. As head of the quality control team, the PM will assign responsibility for the Quality Control Review to an independent member of the PDT not involved with the development of the original estimate. The QC Reviewer will review the estimate from a technical point-of-view to ensure that the estimate is properly constructed and the person developing the estimate is qualified by both education and experience. The PM ensures the QC Reviewer is current with the status and other issues related to the project. The QC Reviewer will sign the Quality Control Review portion of the Checklists to signify their agreement with the findings of the review. The Checklist will then be provided to the District FUDS Program Manager (PgM) for completion of

the Supervisory Review.

6.7.2.2. The HTRW and MM Centers of Expertise will perform the Quality Control Review for estimates developed by those offices either in-house or under contract. The District will remain responsible to conduct the Supervisory Review of these estimates. Appendix G contains the HTRW CX Quality Control Plan for performing QC Reviews of CX developed estimates. Districts should incorporate this QC Plan as an addendum to their overall Plan for performing Quality Control and Supervisory Reviews.

6.7.2.3. The MM CX will perform the Quality Control Review for all MMRP/CWM estimates using the basic procedures outlined in Appendix G, with the following exceptions:

6.7.2.3.1. The electronic transfer of the CTC estimates to Districts will include the MMRP/CWM Estimates (not prepared in RACER) and will include the Final Volume II Report of the CWM Scoping and Security Study used as the basis for the development of the estimate.

6.7.2.3.2. The Standard Operating Procedure for MMRP/CWM estimates will be based on the Standard Operating Procedure for MMRP Estimates referenced in Appendix G, with the following exceptions:

6.7.2.3.2.1. The project assignment report in FUDSMIS will be compared to the list of projects in the CWM Scoping and Security Study.

6.7.2.3.2.2. Verification of all estimates being developed will be based on a review of the completed estimates available in Volume II of CWM Scoping and Security Study for each project.

6.7.2.3.2.3. For projects not having an estimate developed in the CWM Scoping and Security Study, a statement discussing the reason why will be added on the QC/Supervisory Review form.

6.7.2.3.2.4. The verification of Total Property Acreage will not be performed.

6.7.2.3.2.5. Estimates will not be sent back to the contractor for generation of separate project export files.

6.7.3. Supervisory Review. Following successful completion of the Quality Control Review, the USACE District FUDS PgM will conduct a Supervisory Review. Within the USACE District, the FUDS Program Manager is usually one-level above and the functional equivalent of the supervisor of Project Managers executing FUDS projects. As functional head of the FUDS program within the District, the PgM has familiarity with the project being reviewed and has equivalent qualifications of the PM. In completing the Supervisory Review, the PgM will complete and sign the Supervisory Review portion of the Checklist to reflect final approval of the estimate. This completed Checklist will be maintained with the estimate and kept in the permanent Project File and electronically in the FUDS Project Information Retrieval

System (PIRS).

6.7.4. Quality Assurance Review.

6.7.4.1. Following the completion of the Quality Control and Supervisory Reviews of the FUDS project estimates, the USACE Division will perform a Quality Assurance Review of the estimate development process for their assigned Districts. Within the Division, the FUDS Program Manager will lead this effort, often assisted by one of the USACE Centers of Expertise.

6.7.4.2. The CX QA Review will concentrate on the process, rather than individual estimates, by reviewing and testing a statistically representative percentage of the project estimates to ensure the estimates meet estimating and accounting standards, are documented, provide an audit trail, and estimate preparers are properly trained and experienced. Appendix H contains the CX Quality Assurance Plan for reviewing the FY2005 CTC estimates. The Quality Assurance Review will identify actual or potential weaknesses that are to be addressed before the start of the CTC estimate development in the following year. The QA Review will be recorded on the FUDS Cost-to-Complete Quality Assurance Checklist in Appendix H that will be maintained in the Division file.

6.7.5. After Action Report. Following completion of the Quality Assurance Review, the Division will develop an After Action Report containing the findings of their process review. The completed Report will be provided to HQUSACE. If the CXs perform the QA Review at the request of the Division, the CX will provide input to the Division After Action Report.

6.8. Archiving Cost-to-Complete Estimates and Supporting Documentation.

6.8.1. Archiving Requirements. After a district has completed their Quality Control Review and Supervisory Review process, estimates and supporting information must be placed in the District permanent Project Files and archived in PIRS. PIRS is an electronic data storage repository for FUDS projects and is located at the following web site: https://mvrpirs.mvr.usace.army.mil/fuds.cfm. Refer to the Schedule in paragraph 6.4 for the date of completion of this task. For FY2005, the completion date for archiving estimates is 7 March 2005 for District prepared estimates.

6.8.2. District project files must include the following:

6.8.2.1. Electronic copy of estimate or information on where an electronic copy of the estimate is located.

6.8.2.2. Report showing the project costs by phase with a total CTC amount. For RACER estimates, a project level RACER Cost-Over-Time report would fulfill this requirement.

6.8.2.3. Completed and signed QC/Supervisory Review Checklists.

6.8.3. The following must be submitted to PIRS for each project:

6.8.3.1. An electronic copy of estimate. For RACER developed estimates, the file is the RACER Project export file. This is an individual project export file that contains information pertinent only to that project. Refer to the discussion of the Batch Export Utility in paragraph 6.6.3.1 above.

6.8.3.2. A report showing the project costs by phase with a total CTC amount. For RACER estimates, a Project Cost-Over-Time report in either Excel or pdf format should be submitted.

6.8.3.3. The signed QC/Supervisory Review Checklist in pdf format.

6.8.4. PIRS Data Naming Convention. To allow information to be organized on the PIRS web site, Districts need to have the electronic file names correctly formatted to the FUDS Information Improvement Plan (FIIP) naming convention. CTC estimates are filed in the Site Management, Section 01.15, Cost to Complete. The following is the required naming convention:

Property # Project # _Section # _ Fiscal Year_ Permanent File Designation.File Type

Example for RACER estimates:

RACER project estimate (export file):
G03WV001501_01.15_2005_p.mdb

Project Cost Over Time Report:
G03WV001501_01.15_2005_p.xls (or pdf)

QC/Supervisory Review Checklist:
G03WV001501_01.15_2005_p_qcsc.pdf

6.8.4.1. For estimates not created using RACER, an electronic version of the estimate along with a report showing the project costs by phase with a total CTC amount must be submitted to the PIRS FTP site. The file naming convention will be the same as shown above for RACER type files.

6.8.5. PIRS File Transfer Protocol (FTP) Site.

6.8.5.1. An FTP site has been created to allow Districts to submit data easily to PIRS. Each district will have a folder on the FTP site to store data. The following is the location of the FTP site: ftp://mvrpirs.mvr.usace.army.mil/ftpsite/

6.8.5.2. The FUDS Program Manager at each district was provided with a user id/password via email to allow access to the secure FTP site. The Program Manager will be responsible for distributing their District's password to personnel who will be involved in placing files onto the FTP site. The password will allow each user to place files into their associated District folder, create sub folders, etc. Using the user id/password, personnel can also

browse other District's folders/sub folders and view the files. However, they cannot delete or update those files.

6.8.5.3. PIRS administrators have been instructed to move files from the FTP site and place them onto PIRS in the appropriate location based on the file names. The FUDS Program Manager at each district is responsible for verifying each of their District's estimates has been correctly uploaded onto the PIRS web site.

7. **Points of Contact**. The following personnel are the primary points of contact for CTC estimate preparation, review, and overall coordination at HQUSACE and the CXs.

7.1. HQUSACE.

Julian Chu
HQUSACE FUDS Program Manager
CEMP-DE
202-761-1869

7.2. HTRW Center of Expertise.

Thomas Pfeffer – Overall FUDS Program Support
HTRW CX FUDS Program Support Manager
CENWO-HX-P
402-697-2620

Katherine Peterson – Overall CTC Support and outyear MMRP estimates
HTRW CX Cost Engineer Team Lead
CENWO-HX-T
402-697-2610

POCs for Divisions and Districts:

Steve Butler – For SPD and SWD Divisions and Districts
HTRW CX Cost Engineer
CENWO-HX-T
402-697-2656

Robert Dworkin – For LRD and SAD Divisions and Districts
HTRW CX Cost Engineer
CENWO-HX-T
402-697-2526

Rick Osborn – For POD, NAD, and NWD Divisions and Districts
HTRW CX Cost Engineer
CENWO-HX-T
402-697-2426

7.3. Military Munitions Center of Expertise.

Jason Adams – For MMRP/CWM and active MMRP estimates
Cost Engineer
CEHNC-ED-ES-C
256-895-1556

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Appendix A
References

A-1 United States Statutes.

10 USC §§2701-2708, §2710, §2805
Defense Environmental Restoration Program.

42 USC §§6901-6992
Resource Conservation and Recovery Act of 1976 (RCRA).

42 USC §§9601-9657
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986601-9657

PL 101-576
Chief Financial Officers Act of 1990.

PL 103-356
Government Management Reform Act of 1994.

PL 103-62
Government Performance and Results Act of 1993, 3 August 1993.

PL 104-208
Federal Financial Management Improvement Act of 1996, 31 USC §3512.

Annual Defense Appropriation and Authorization Acts
Environmental Restoration Account Appropriations.

A-2 Federal Regulations

40 CFR Part 300
National Oil and Hazardous Substances Pollution Contingency Plan.

49 CFR Part 24
Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs.

Federal Accounting Standards Advisory Board (FASAB), Statements of Federal Financial Accounting Standards (SFFAS) No. 5
Accounting for Liabilities of the Federal Government.

Federal Accounting Standards Advisory Board (FASAB), Statements of Federal Financial Accounting Standards (SFFAS) No. 6
Accounting for Property, Plant, and Equipment.

A-4 Department of Defense Publications

DoD Instruction 5000.61
DoD Modeling and Simulation Verification, Validation, and Accreditation (VV&A), 29 April 1996.

DoD Instruction 7000.14R
DoD Financial Management Policy and Procedures, 15 November 1992.

DUSD(I&E) Memorandum, 28 September 2001
Management Guidance for the Defense Environmental Restoration Program (DERP) – September 2001.

FMR 7000.14
DoD Financial Management Regulations (FMR) 7000.14, Volume 3, Chapter 17, Volume 4, Chapter 14, Volume 6B, Draft Chapter 4; Volume 6B, Draft Chapter 10.

Environmental Liabilities Required To Be Reported on Annual Financial Statements, Report No. D-2004-080, DoD Inspector General, 5 May 2004,

A-5 Department of Army Publications.

AR 1-1
Planning, Programming, Budgeting, and Execution System.

Army Environmental Cleanup Strategy, ASA/(I&E) Memroandum, 28 April 2003.

Improving the Report of Environmental Liabilities, DAIM-AZ Memorandum, 18 November 2004

A-6 USACE Publications.

ER 5-1-11
Management – U.S. Army Corps of Engineers Business Process.

ER 200-3-1
Formerly Used Defense Sites (FUDS) Program Policy

ER 1110-3-1301
Cost Engineering Policy Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW)—Remedial Action Cost Estimate.

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Appendix B
Instructions for Developing FUDS CTC Estimates

These Instructions provide directions and systematic procedures for developing CTC estimates with the RACER 2005 software. Following these instructions will allow you to develop estimates that are creditable, defensible, and able to pass the Quality Control, Supervisory, and Quality Assurance Reviews. Further, in order to use the software standalone RACER Post Processor and Batch Upload Utilities, the phase naming conventions and other requirements outlined in these Instructions must be strictly followed.

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October 2004

INSTRUCTIONS FOR DEVELOPING FUDS CTC ESTIMATES

In an effort to aid the districts in developing creditable and more defensible estimates for the FUDS program the following instructions are offered. In addition, these instructions include step-by-step procedures and requirements for developing cost to complete (CTC) estimates with the RACER 2005 software. The instructions incorporate items of concern with previous CTC estimates that surfaced during the recent audits. The intent of this document is to enhance the estimating process to help the districts pass future audits of the FUDS program.

1.0 General Instructions for Developing MMRP, HTRW, CON/HTRW, and BD/DR RACER CTC Estimates – The following are general instructions for developing more creditable and defensible RACER CTC estimates and should be followed for the estimates. This document also outlines specific requirements that must be incorporated in the RACER estimates in order for the new Post Processor to be used. The Post Processor is a utility feature incorporated into RACER 2005 to provide the district a report, which shows the estimate phase cost and their associated start dates as determined when the estimate was developed. The Post Processor also provides an electronic "Access" file that can be used when FUDSMIS is enhanced to electronically upload phase costs into FUDSMIS. These specific requirements are shown in '***bold Italic***'. Please ensure the RACER generated estimates have these requirements incorporated.

- **RACER Preferences:** - In developing FUDS CTC estimates using RACER, the Preference feature in RACER must be utilized. The specific preferences that must be utilized are the Level Names, Level Two Types, and the Markup Templates. Preferences in RACER 2005 software should be checked to ensure correct FUDS nomenclature is used for the level names and that the correct project categories are added to the level two types. The Level Names in RACER will be modified as follows: Level One will be called "FUDS Property", Level Two will be called "Project" and Level Three will be called "Phase". Level Two Types will include the following selections: MMRP, HTRW, CON/HTRW, BD/DR. Also, the RACER Preference menu is where the Markup Templates are added. The suggested FUDS Markup Templates have changed slightly from last year for RACER 2005. Four suggested templates are being utilized this year and should be selected based on the phase being estimated. See Paragraph 1.3, and Table 2 for template percentage information. The FUDS specific Preferences and Markup Templates can be obtained from the HTRW-CX and can be imported into RACER 2005. If you need the revised Markup Templates contact Rick Osborn at (402) 697-2426. In addition if the district has specific Markup Templates created to support their district, they can be utilized as well. The main point is that the

RACER default Markup Template cannot be used because it does not include owner costs.

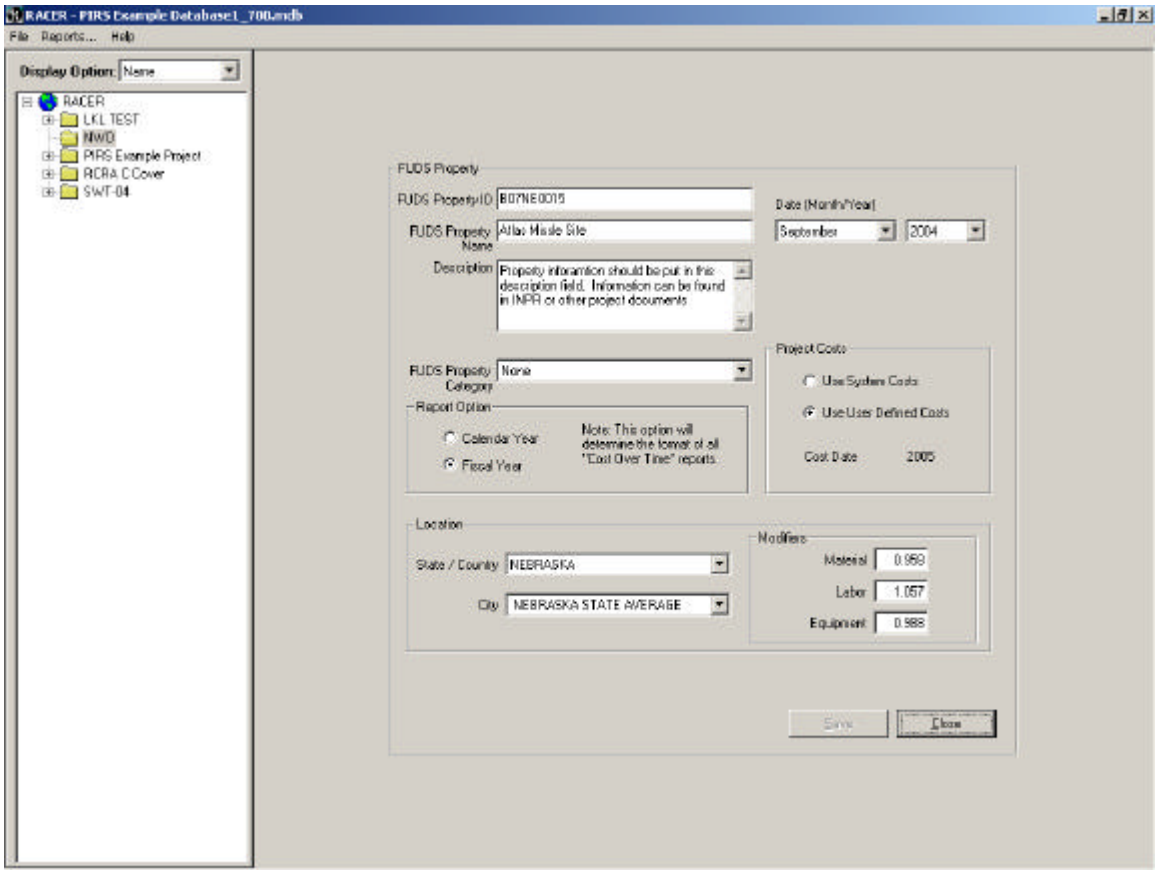
- **Folder Names** – Folders (Level 0 in the RACER hierarchy) will be named using the three-letter abbreviation for the USACE District. Example: Omaha District would be 'NWO'.
- **Level Names** – As described above in "RACER Preferences", the default names for the first three RACER estimating levels will be standardized as follows as a result of importing the preferences into RACER or manually changing the level names:
    - Level 1 – FUDS Property
    - Level 2 – Project
    - Level 3 - Phase

1.1 RACER Level One CTC Estimate Requirements

- ***The "FUDS Property" field must be the nine digit number assigned to the property as identified in FUDSMIS***
- ***The "FUDS Property Name" field must be that as identified in FUDSMIS.***
- The "Date" field must be the date the estimate is being prepared or updated if it is an existing estimate.
- The "Property" category field input will be <none>.
- "Cost Database" field will utilize <User-Defined Costs> selection in RACER.
- "Reporting Option" field will use the <Fiscal Year> reporting option.
- The "Description" field should contain property level documentation to include various aspects of the property. Much of the information needed to fill out the property description can be obtained from the INPR or other appropriate documents. Required Information that will be captured in the comment field are:
    - A brief narrative that describes the property history
    - Location of property
    - Criteria for selection of the location if not an exact match and if for some reason the estimator changes the default location factors, documentation as to the basis for the change must included in the description field
    - Other instructions, if any, provided by the District PM
- "Location and Modifiers" will be the state and closest city or installation the project is in or near. If a match cannot be found then the state average

can be used. If for some reason the estimator changes the default location factors, documentation as to the basis for the change must included in the description field. However, it is recommended that these modifiers not be changed.

- Level One RACER screen shot example is shown below:



1.2 <u>RACER Level Two CTC Estimate Requirements</u> – Level two within RACER 2005 has a new look and functionality as demonstrated by the RACER screen shots shown below. With RACER 2005 there are now two ways to create an estimate, either manually or through the use of templates. In either case, the fields and screen shots shown below are examples of what needs to be filled out to make the estimate fully documented. The RACER screen shots shown below are based on using the "manual" method to setup the estimate. If the "template" method is used, the basic screens will look the same, and required information will also be the same. The only difference is that when using the template method the phase names will be established with the correct FUDS nomenclature for the user. It is recommended for new estimates to use the template method. All existing estimates, either imported or carried over into RACER 2005 will be designated as manually generated estimates. Also with this new look, there are now tab information screens where the user can fill out estimator and reviewer contact information. If RACER estimates from older versions are used they should be opened up in RACER 2005, and appropriate Level Two information filled out as per the following.

- ***The "Project ID" field must be the two-digit number assigned to the project as identified in FUDSMIS.***

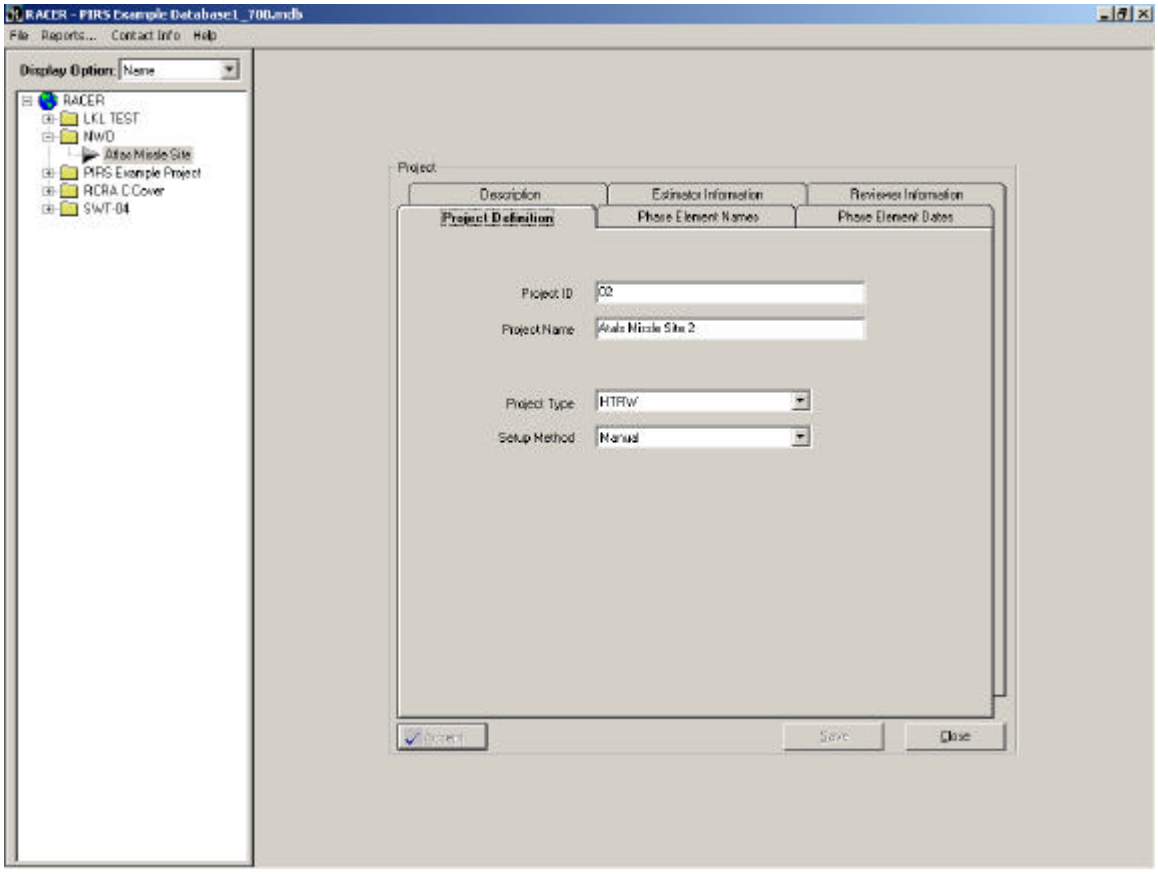
- ***The "Project Name" field must be that as identified in FUDSMIS.***
- ***The "Initial Phase Start Date" field will reflect the anticipated start date for the appropriate phase selected in the estimate. The project or program manager should determine these dates. If older versions of the RACER estimates are used, these dates must be reviewed for accuracy and changed appropriately. Using correct phase start dates are important when developing the estimate as they will be the basis for when the projects are run through the Post Processor and uploaded into FUDSMIS.***
- ***The "Project Type" field input must be that of the type of project being estimated as identified in FUDSMIS (MMRP, HTRW, CON/HTRW, BD/DR).***
- The "Description" field must contain project level information to document specific aspects of the project, and the estimate being developed. The required data elements that must be captured in the comment field are:
    - District PM name and telephone number
    - Technical Personnel, if applicable, that was instrumental in developing the estimate treatment train etc.
    - Type of documents the estimating team relied upon (e.g., INPR) in developing the estimate
    - Basis for Phase start dates (e.g., per District PM)
    - Reasons for the change from the last reported estimate
    - Other narrative descriptions that describe the project (project history, media and contaminate being remediated, assumed approaches, etc.)
    - Other instructions, if any, provided by the District PM
- Level two of the RACER hierarchy is where the user establishes which phases to include in the estimate and the phase start dates. Phases at this level will include only those phases relevant to the type and status of the project being estimated. Please coordinate with project manager to see what phases are applicable for the project being estimated. Table 1 below, shows the FUDS nomenclatures for phase names as compared to the standard RACER phase names. Also, refer to Table 4-4 of the FUDS ER 200-3-1 dated May 10, 2004 (the FUDS Program Manager should be able to provide you with the table) to ensure applicable phases are included for specific project types. If the "manual" method is chosen to create the estimate these FUDS phase name will have to be entered at level three of the estimate. Again, if the "template" method is used, the correct phase names will be defaulted for the user depending on the project category. However, the user will have to decide which phases are applicable to the project. Meaning that for an HTRW project if the RI/FS

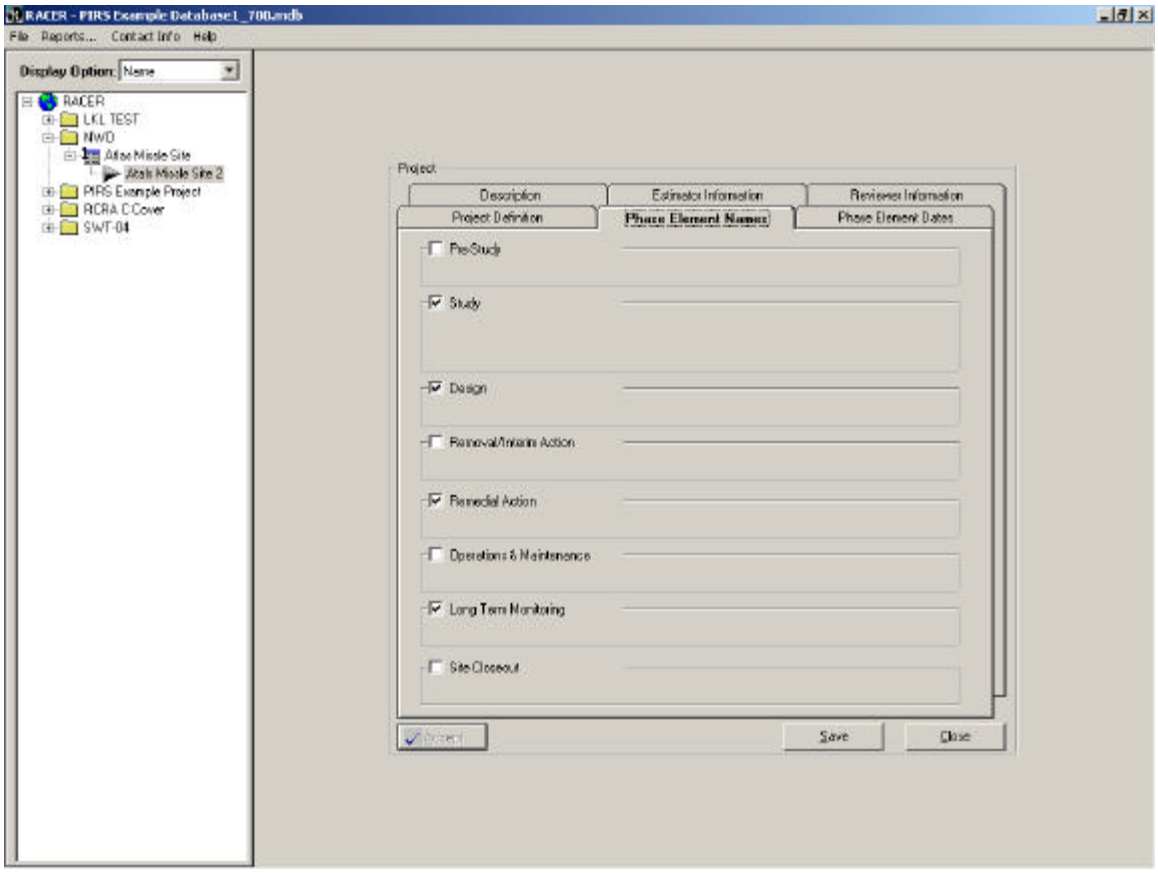
phase is complete then you would not want to include this phase in the CTC estimate and it should be de-selected in the standard template.

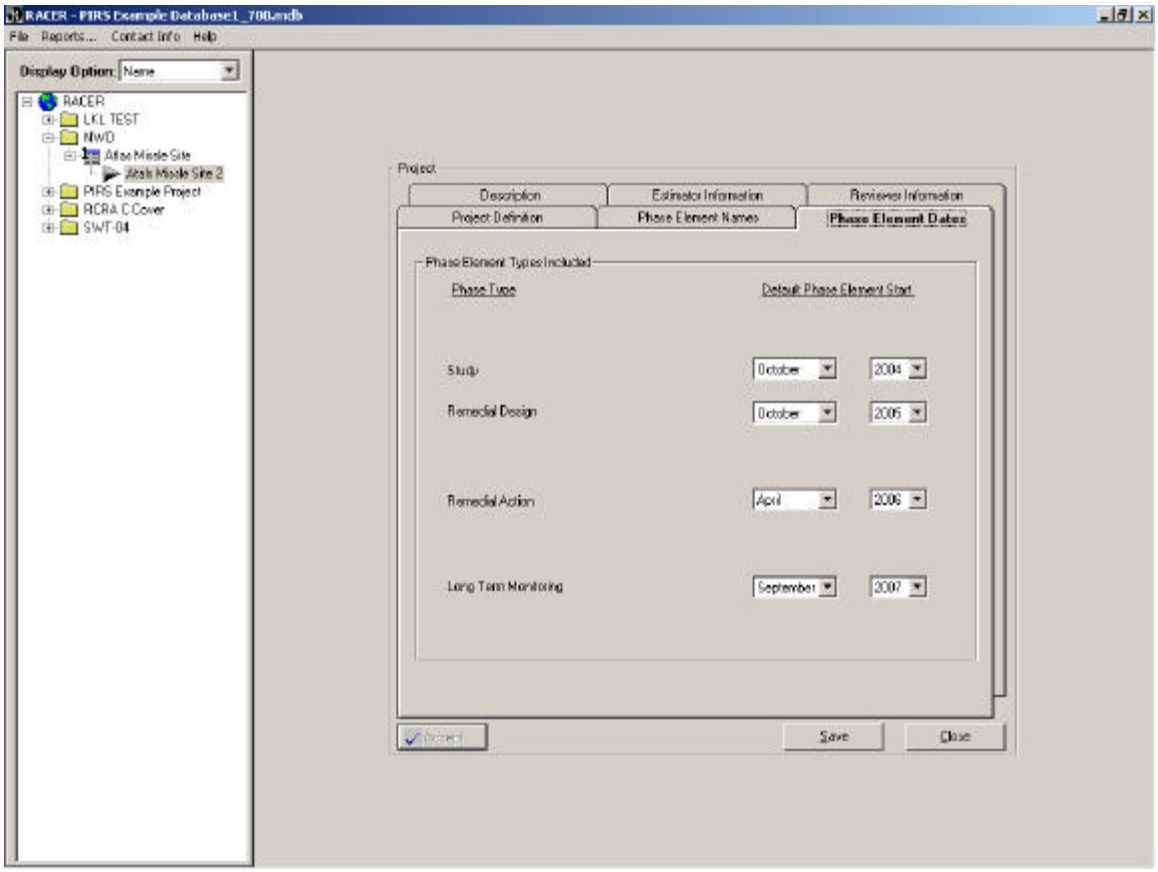
Table 1. Phase Naming Conventions

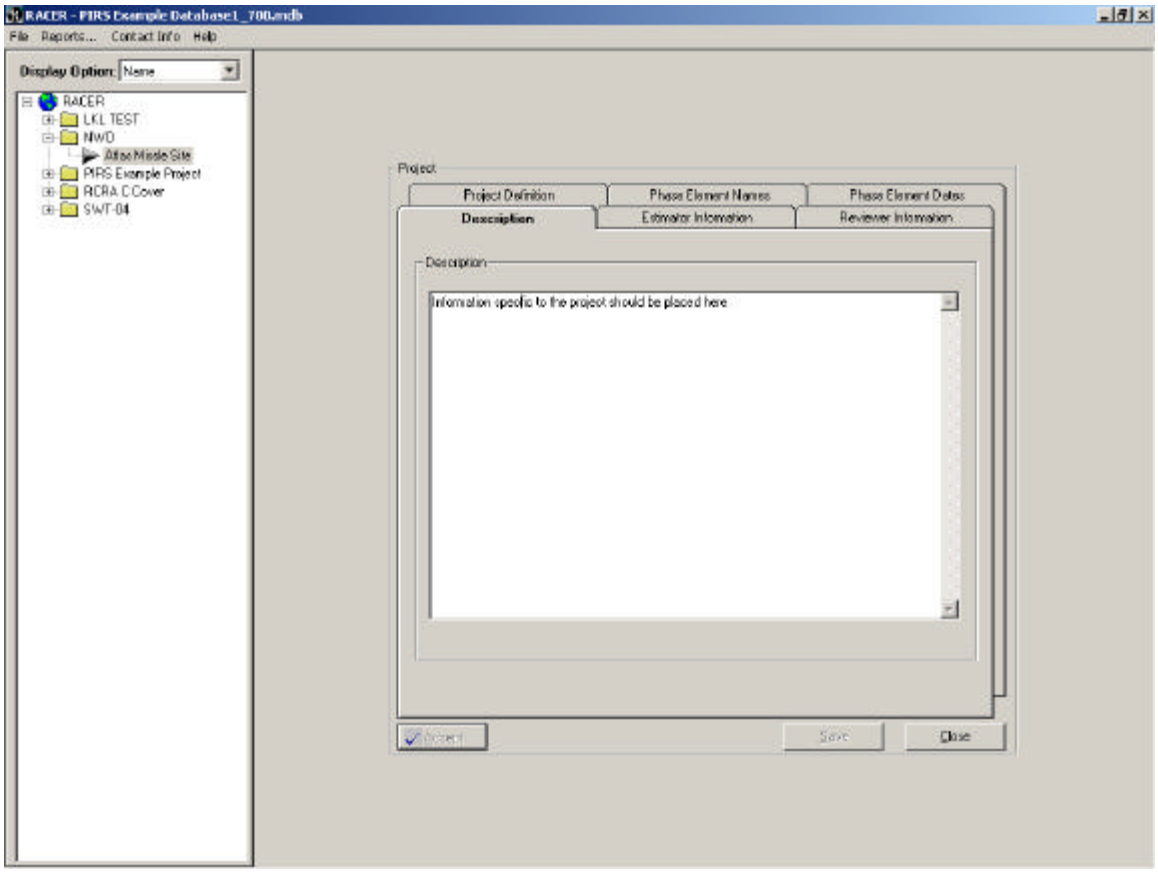
FUDS Program Phase	RACER Phase
SI	Pre Study
RI/FS	Study
EE/CA	Study
RD	Remedial Design
RmD	Remedial Design
RA-C	Remedial Action
RmA-C	Interim/Removal Action
IRA	Interim/Removal Action
RA-O	Remedial Action Operation
LTM	Long Term Monitoring
PCO	Site Close Out

- Reference the “Estimator” and “Reviewer” Information Tabs shown in the screen shots below. The estimator information is required, in that, if this is not filled out the user cannot proceed with the estimate development. For those users that develop a lot of estimates this information can be stored in a menu selection called “Contact Info”. This information can be automatically populated in the Estimator Information tab by selecting the “Use Contact Information” button. Only one set of contact information can be stored at this menu selection. The Reviewer Information tab is not a required tab in the sense of being able to go on in the estimate development process, but is required for final review of the estimate. This tab was designed to be filled out after the estimate is complete and must be filled out by the reviewer of the estimate. There are checks built into the RACER systems to ensure that the estimator information and reviewer information is not one in the same. The reviewer can store their contact information on their copy of RACER and populate the reviewer tab the same way.
- Level 2 screen shot examples below:




RACER - PIRS Example Database1_700.mdb
File Reports... Contact Info Help
Display Option: Name
RACER
LKL TEST
NWD
Atlas Missile Site
Atlas Missile Site 2
PIRS Example Project
RCRA CCover
SWT-04
Project
Description
Estimator Information
Reviewers Information
Project Definition
Phase Element Names
Phase Element Dates
Pre-Study
Study
Design
Removal/Interim Action
Remedial Action
Operations & Maintenance
Long Term Monitoring
Site Closeout
Save
Close


RACER - PIRS Example Database1_700.mdb
File Reports... Contact Info Help
Display Option: Name
RACER
LKL TEST
NWD
Atlas Missile Site
Atlas Missile Site 2
PIRS Example Project
RCRA CCover
SWT-04
Project
Description
Estimator Information
Reviewers Information
Project Definition
Phase Element Names
Phase Element Dates
Phase Element Types Included
Phase Type
Default Phase Element Start
Study
October
2004
Remedial Design
October
2005
Remedial Action
April
2006
Long Term Monitoring
September
2007
Accept
Save
Close


RACER - PIRS Example Database1_700.mdb
File Reports... Contact Info Help
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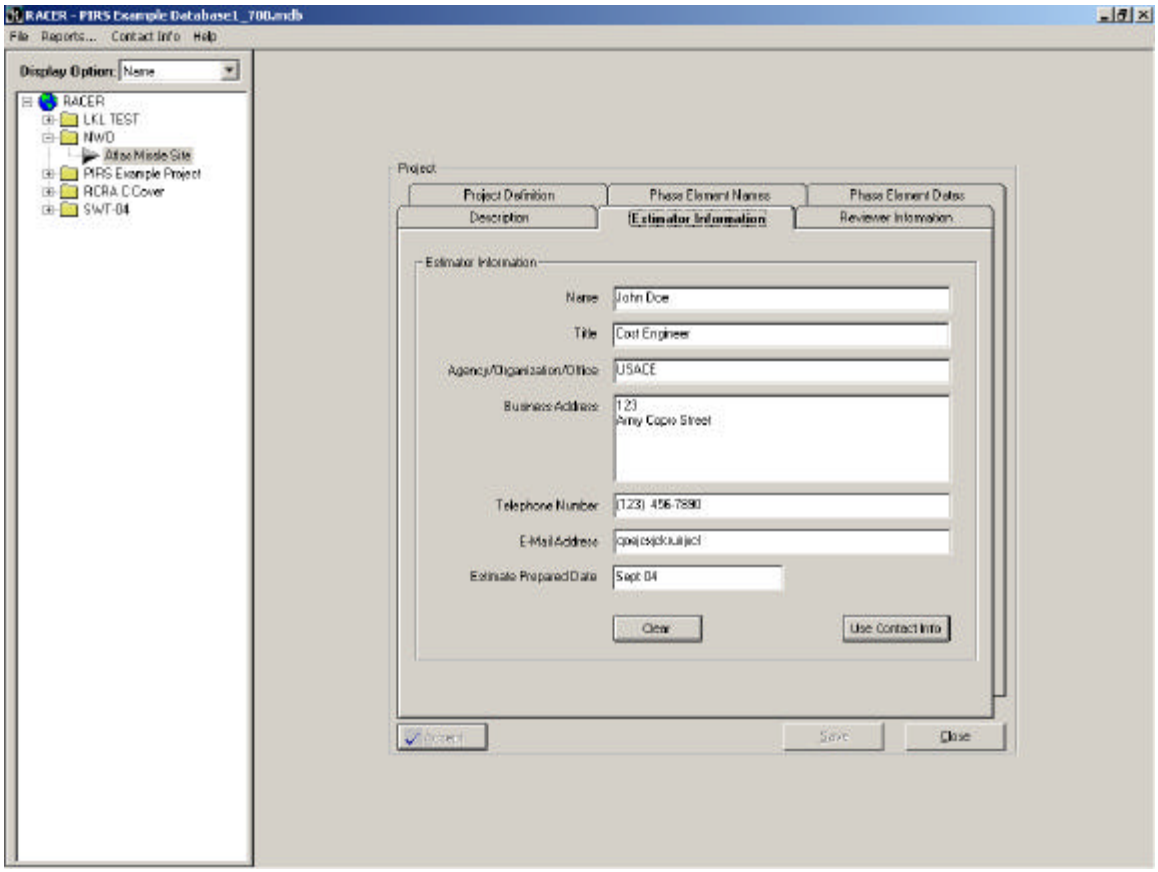
RACER
LKL TEST
NWD
Atlas Missile Site
PIRS Example Project
RCRA C Cover
SWT-04
Project
Project Definition
Phase Element Names
Phase Element Dates
Description
Estimator Information
Reviewer Information
Description
Information specific to the project should be placed here
Save
Close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NWO
Atlas Missile Site
PIRS Example Project
RCRA C Cover
SWT-04
Project
Project Definition
Phase Element Names
Phase Element Dates
Description
Estimator Information
Reviewer Information
Estimator Information
Name
John Doe
Title
Cost Engineer
Agency/Organization/Office
USACE
Business Address
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Army Corps Street
Telephone Number
(123) 456-7890
E-Mail Address
Estimate Prepared Date
Sept 04
Clear
Use Contact Info
Save
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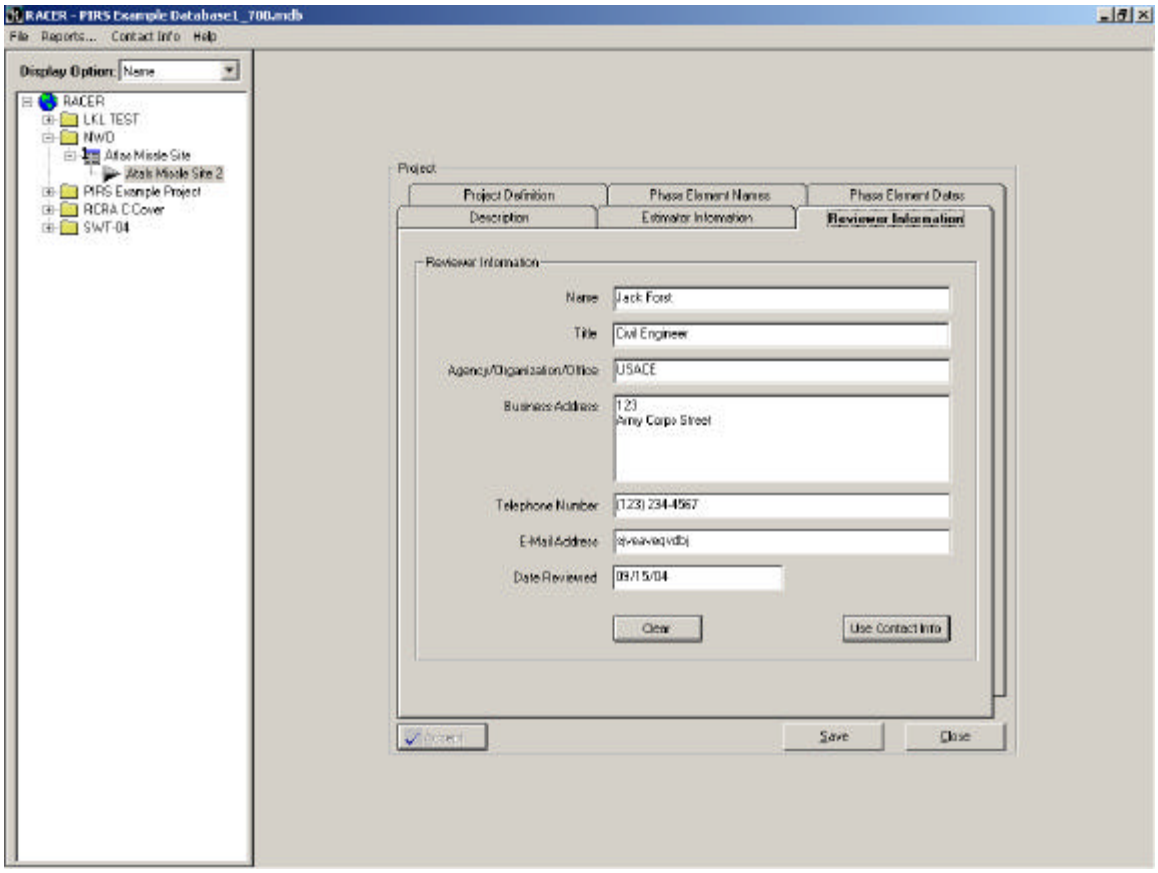


1.3 RACER Level Three CTC Estimate Requirements

- ***The "Phase Name" – The phase name for this field must exactly be in accordance with the abbreviations shown in Table 1 above, depending on the phase being estimated. The phase name cannot be spelled out and the abbreviations must include the hyphenations and back slashes where applicable. If the template method is used these phase names will be populated for the user. If older versions of the estimates are used, check the phase names to ensure they are correct.***
- The "Media/Waste Type" field will include the primary waste being treated.
- The "Secondary Media/Waste Type" field will include the secondary waste being treated in the estimate, if applicable.
- The "Contaminant" field will include the primary contaminant being treated.
- The "Secondary Contaminant" field will include the secondary contaminate being treated, if applicable.

- The “Approach” field will include the approach used depending on the technologies being estimated (i.e., If the Excavation and Off-site T&D technologies are chosen, then the approach would be “ex-situ”).
- The “Phase Start Date” should be the anticipated start date for the phase being estimated which was set up during the level two screen inputs. These start dates will be automatically populated as set up in Level Two for new estimates. If older versions of the estimates are used, make sure the start dates at Level Three match the Level Two start dates.
- The “Phase Markup %” button should be chosen to select the appropriate FUDS Markup Template for the specific phase being estimated. The suggested markup templates will be loaded in the system when the correct preferences are imported (see Section 1.0 above). The FUDS Markup Templates are based on the basic RACER default markup template, and include allowances for Risk/Contingencies and Owner Costs as shown in Table 2.

Table 2. Risk/Contingency Allowances by Phase

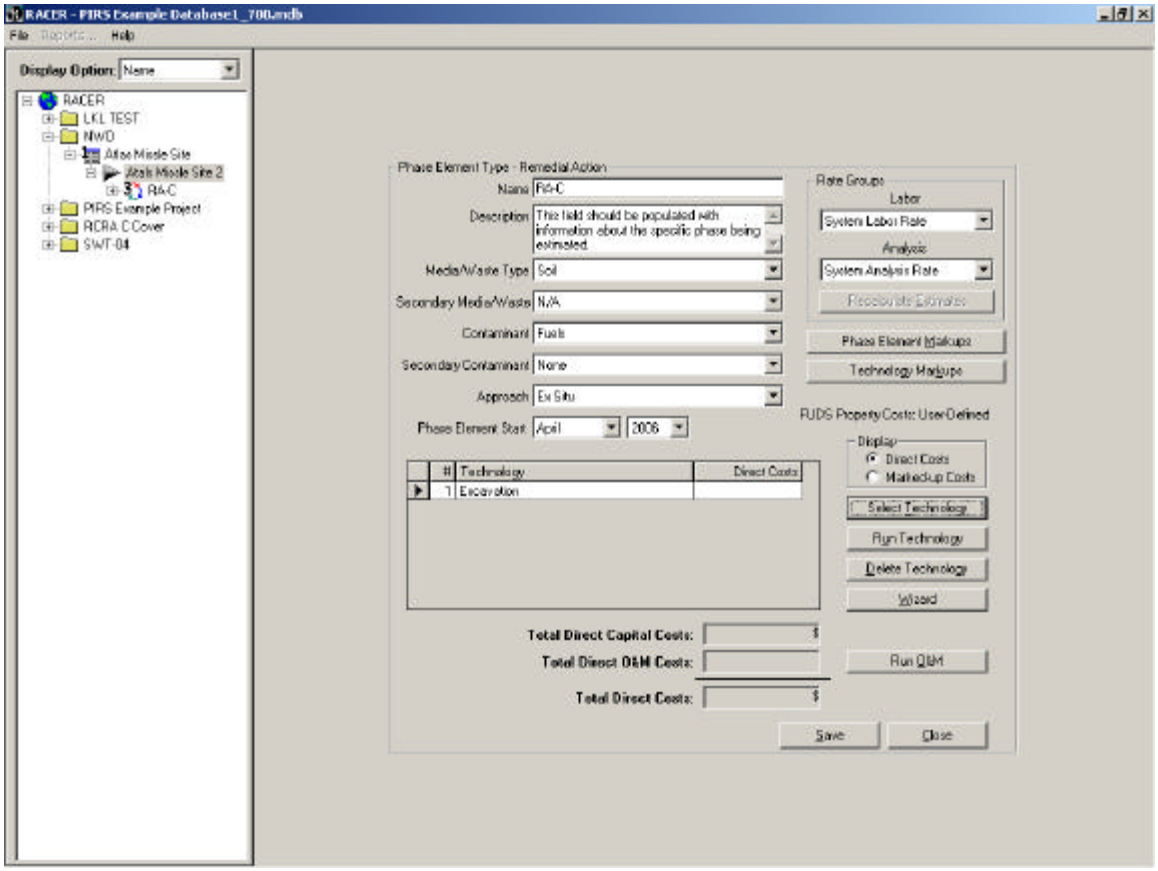
FUDS Phase	Risk/Contingencies	Owner Cost
PA	5.00%	12.00%
SI	5.00%	12.00%
RI/FS	5.00%	12.00%
EE/CA	5.00%	12.00%
RD	15.00%	13.00%
RmD	15.00%	13.00%
RA-C	15.00%	13.00%
RmA-C	15.00%	13.00%
IRA	15.00%	13.00%
RA-O	15.00%	13.00%
LTM	5.00%	2.00%
PCO	0.00%	0.00%

- “Rate Groups” and “Technology Markup” fields on this screen will be left as defaulted in RACER.
- The “Description” field is a mandatory entry field and must be used to document various aspects of the phase being estimated. The user will be prompted by the system to update this field whenever making changes to

this screen and/or technologies within the phase. This will also be the case when older versions of the estimates are used in RACER 2005 and changes are made to level three. This is something new for RACER 2005 and was designed to enhance documentation requirements. The applicable data elements that will be captured in the comment field are:

- Rationale for technology selections/changes.
- Statement about consideration and evaluation of use of innovative technology.
- Statement about duration of any cost element that has cost over time (i.e., RA-O phase, and the Monitoring and Natural Attenuation technology models), if applicable.
- Specific regulatory procedures or concerns that affect the overall cost estimate, if applicable.
- Any unique or special site specific considerations that have a significant effect on the CTC estimate.

- Level 3 screen shot example below:



- The above screen shot shows the “Run 0&M” button. In past versions of RACER, the O&M phase was created in the RA-C phase. A few years ago RACER created a way to make the RA-O phase (O&M) a standalone

phase. This is now the preferred way to calculate RA-O and will be used for all new estimates. Existing estimates that contain the RA-O (O&M) phase calculated under the old method should be transitioned to the current method by creating a separate RA-O phase. Chances are, in the future, RACER will no longer support the old method of calculating RA-O (O&M). It is now time to start the transition for these older estimates and update them appropriately.

1.4 RACER Level 4 (Technology Level) CTC Estimate Requirements

- Each technology has required and secondary parameters. These parameters must be filled out to the greatest extent as possible to match the project being estimated.
- Each technology being estimated has a "Comments tab". This field must be filled out and is intended to document things specific to the technology. Applicable data elements that will be captured in the comment field are:

Rationale for required parameter selections and secondary parameter modifications (i.e., if the excavation model is used, show in the comments, how you derived at the quantity to be excavated, etc).

- Explain changes and/or additions to assembly items.
- List any quotes used for pricing.
- Statement about duration of any cost element that has cost over time (i.e., RA-O phase, and the Monitoring and Natural Attenuation technology models).
- Any unique or special site specific considerations that have a significant effect on the technology being estimated.

2.0 Updating MMRP, HTRW, CON/HTRW, BD/DR Estimates From Previous Versions of RACER:

- Significant changes in RACER 2005 from previous versions have occurred with regards to mandatory data entry fields at Level 1, Level 2, and Level 3, database changes, model changes etc. As a reminder, past estimates (estimates developed with previous versions of RACER) must be brought into RACER 2005 and updated with the current database to ensure current year pricing and with the provisions listed in paragraphs 1.0 through 1.4 to the maximum extent practicable. Also, some of the models have changed in RACER 2005, which require unique update procedures. A complete list of models that have changed in RACER will be noted in the "What's New" section of the RACER Help Manual. The changes to models will not be incorporated in the estimates until the particular model is re-ran. To re-run a model the user will have to go into a secondary

parameter screen, change a secondary parameter selection and then change it back in order to activate the "accept" button. It's critical that the user change a secondary parameter and not a required parameter because if a required parameter is changed it will change any secondary parameter back to its original default. Once the accept button is activated push accept, save and close the model. If there is an RD phase in the estimate, the system will prompt the user to recalculate RD as well.

3.0 PRP Project Estimate Preparation – PRP projects became an issue during past audits where questions were raised on how the costs were developed, and what type of documentation was available to support the costs in FUDSMIS. Normally, costs associated with PRP projects in FUDSMIS represent district 'level of effort' costs associated with negotiation/litigation support. Also, included are amounts for which the ER-FUDS account is responsible under signed agreements. RACER may not be the proper tool to estimate these types of costs because they are not parametric in nature and there are no appropriate models in the system to estimate this level of effort. To support 'level of effort' and signed agreement costs in FUDSMIS, the district should document the following information in a excel spread sheet estimate to include:

- PRP 'level of effort' estimates showing number of project management, attorney, technical, etc. hours times the respective hourly rates.
- PRP estimates shall include any contract support needs for PRP investigation/records collection.
- Provide a brief explanation of duties performed for the level of effort to support the man-hours.
- Estimates shall be forecast for as many years as the PM feels is needed and shall be divided into Project Negotiations and Technical participation, etc.
- The signed agreement will be made part of the supporting documentation, and other pertinent project information used as the basis for including costs in FUDSMIS. There may be an estimate developed to back up the signed agreement. This estimate developed during any phase could include a RACER estimate, MCACES estimates, etc to support FUDSMIS. If there is no signed legal agreement, no programmed amounts will be input into FUDSMIS.

4.0 Estimates Developed With Other Tools - In some cases MCACES estimates, contractor estimates, and study phase estimates, etc. is used to support CTC FUDSMIS entries. When these types of sources are used, the documentation requirements are the same as in the above paragraphs and should be incorporated into the estimate. Also the property and project numbers should be documented in the estimate as well to provide association with the

project. The main objective is for the FUDSMIS Cost to Complete Estimate entry to be traceable to the estimate and that estimate to be traceable to the project.

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Appendix C
Instructions For RACER Batch Export Utility

The attached document contains instructions on the use and functionality of the standalone RACER Batch Export Utility.

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Batch Export Utility

1/18/05

General
The Batch Export Utility was developed as a stand-alone utility separate from *RACE*R. This utility takes information from a single FUDS CTC project estimate in a RACER database and saves this information in an export file. The export file can then be submitted to PIRS for upload onto the PIRS web site.

File Naming Convention for Submission to PIRS
Cost-to-Complete estimates placed on PIRS are filed in the Site Management Section 01.15 Cost-to-Complete. The following is the required naming convention:
Property # Project # _Section # _ Fiscal Year_ Permanent File Designation.File Type

The Batch Export Utility uses the PIRS naming convention to name individual project estimates:

Example Estimate Export File: G03WV001501_01.15_2005_p.mdb

Cost Over Time Reports
The Batch Export Utility does not create individual Cost-Over-Time Reports. However, these reports can be created using the Reports Tab in RACER:

1. Open RACER.
2. Open the correct database.
3. Highlight the folder containing the estimates that you want run Cost-Over-Time Reports for.
4. Open the Reports Menu within RACER.
5. Under Folder Reports, highlight <FUDS Project Cost-Over-Time (Excel – batch mode without escalation)> and hit the “Run Reports” button.
6. Once the Batch FUDS Project Cost-Over-Time Report has been created, project estimates should be separated from the batch export report and saved individually using the following PIRS naming convention:

Cost-Over-Time reports naming convention:
Property # Project # _Section # _ Fiscal Year_ Permanent File Designation.File Type

Example Cost-Over-Time Report Name: G03WV001501_01.15_2005_p.xls

Obtaining Software

To obtain the software, please follow the instructions below:

1. Go to ftp://ftp2.earthtech.com
2. Login as FUDS2005
3. The Password is mmrp-htrw
4. The next screen will contain a folder named CX Deliverables. Within this folder is the Final Batch Export Utility folder. This folder contains the following items:
    - Batch Export Utility 2005 SRD - FINAL.pdf
    - Batch Export Utility Users' Guide 2005.pdf
    - Setup.exe (this is the utility installation file)

Installation

1. Create a folder on the desktop to receive the Batch Export Utility files that will be downloaded from the ftp site noted in the email instructions.
2. Once the download is complete, go to the folder that contains the downloaded files and double-click on the Setup.exe icon.
3. InstallShield will install the utility on your computer. Please follow the directions on each screen of the installation process.
4. Once the installation is complete, the Batch Export Utility will be ready to use.

Points of Contact

Please contact Steve Butler 402-697-2656, Rick Osborn 402-697-2462, or Bob Dworkin 402-697-2526 with any questions concerning the post processor.

Thanks

Steve Butler

Appendix D
Instructions For RACER Post Processor Utility

The attached document contains instructions on the use and functionality of the standalone RACER Post Processor Utility.

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Post Processor User's Guide

1 November 2004

Prepared for
U.S Army Corp of Engineers HTRW CX
Omaha, NE

Prepared by
Earth Tech, Inc.

Table of Contents

Introduction

The intent of this guide is to provide users with instructions on how to use the FUDS Post Processor software. Notes and comments have also been added to apprise you of important system behaviors and how they can affect your outputs. Please use this guide as a reference when generating post processed databases or reports. If you need additional information about the FUDS Post Processor, please contact Earth Tech at 303-771-3103.

What is the Post Processor?

The Post Processor operates with *RACER* 2003, 2004 and 2005 databases containing CTC estimates for MMRP projects generated by the FUDS Wrapper and databases containing FUDS project CTC estimates developed by the USACE for Hazardous, toxic and radioactive waste (HTRW), Containerized HTRW (CON/HTRW), or Building Demolition/Debris Removal (BD/DR) project types. The CTC data for the MMRP and other FUDS projects will be extracted from the *RACER* databases, post processed into a FUDSMIS upload table. The Post Processor will perform several functions including:

- Extracting phase-level costs.
- Rounding costs to kilo-dollars ($1,000s) to five decimal places.
- Spreading costs for pre-study, study, remedial action, long-term monitoring, and site closeout phases over time by fiscal year.
- Adjusting start dates for phases subsequent to study and remedial action phases for which costs are spread over more than one year.
- Apportioning costs between in-house (IH) and Contractor (CON) categories.

Note: The Post Processor will operate with all technology models and functionality in RACER 2003, 2004 or 2005 databases only (version 5.0.0 or later). This means that all prior year estimates must be updated to one of these versions.

Executing the Post Processor Application

To launch the Post Processor application select the FUDS Post Processor.exe icon (shown in Figure 1) located under the Start Menu/Program Files/FUDS Post Processor directory. This will launch the Post Processor application and the Select Database tab will be displayed (see Figure 2).

Figure 1 – FUDS Post Processor Executable Icon

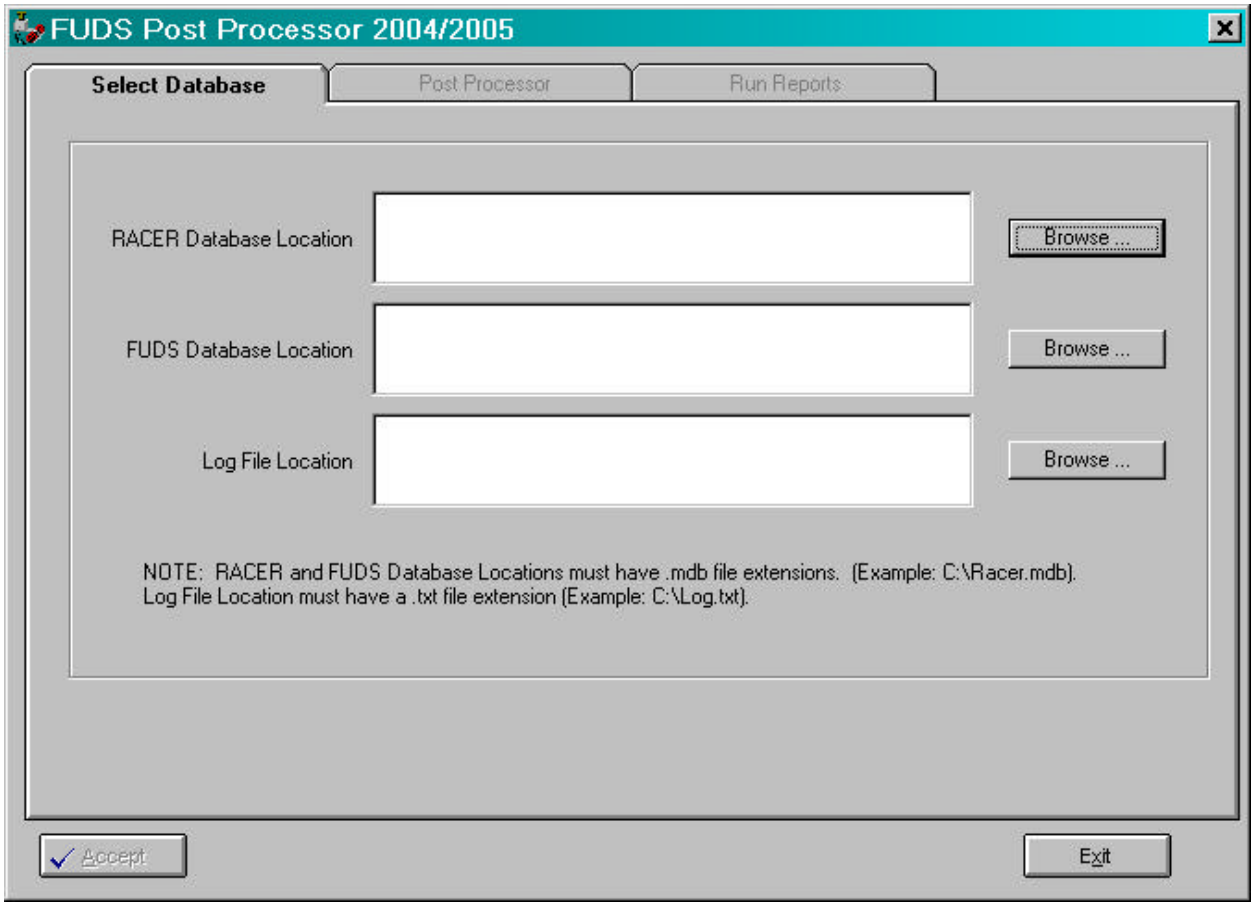
FUDSPostProcessor.exe

Selecting Databases

The Select Database tab has three data fields, all of which define paths to specific types of files:

- **RACER Database Location** – This field specifies the location of the RACER database containing the FUDS CTC estimates to be processed for uploading into FUDSMIS.
- **FUDS Database Location** – This field specifies the location of the FUDS Post database into which the post-processed CTC estimates will be stored.
- **Log File Location** – This field specifies the location of the log file that will be generated by the Post Processor.

Figure 2. Select Database Tab

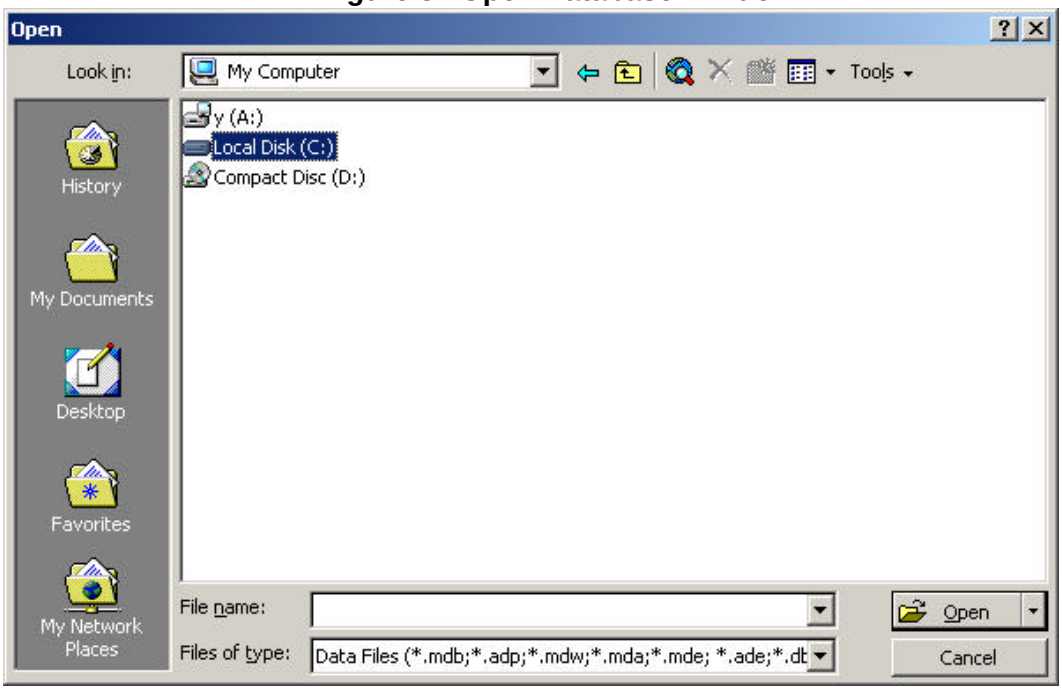


Step 1— Specifying the RACER Database Location

Select the location of the RACER database containing the FUDS CTC estimates to be processed for uploading into FUDSMIS by selecting the "Browse" button next to the RACER Database Location field on the Select Database tab.

Note: The Browse buttons located to the right of each data field will display a separate window with which the user can navigate to and select the desired files (see Figure 3).

Figure 3. Open Database Window



Step 2 — Specifying the FUDS Database Location

Select the location of the FUDS Post database into which the post-processed CTC estimates will be stored by clicking the browse button next to the FUDS Database Location field. An existing database can be selected or a new database name can be specified. If an existing database is selected the existing data will be overwritten with the new data once the Post Processor is run. If a new database file is specified, the Post Processor will create the database file and populate it with the post-processed CTC estimates.

Important Note: This version of the post processor cannot be used with databases created with prior versions of the post processor software. If you have existing post processor databases, type in a new name rather than selecting the existing file.

Step 3 — Specifying the Log File Location

If any records contained errors during the post processing validation, the records, along with their corresponding error messages, will be written to a log file. Select the location of the log file that will be generated by selecting the browse button next to the Log File Location field on the Select Database tab. An existing log file can be selected or a new log file name can be specified. If an existing file name is selected the existing error log will be overwritten with the new error information once the Post Processor is run. If a new database file is specified, the Post Processor will create the log file and populate it with the error information.

Step 4 — Select the Accept Button

Once all the input parameters are specified on the Select Database tab, the Accept button becomes enabled (Note: this behavior is consistent with the way RACER handles tabbed forms).

Select the Accept button. If all selections meet the Select Database tab validation requirements, the Post Processor application will display the Post Processor tab (see Figure 4).

Select Database Tab Validation Errors

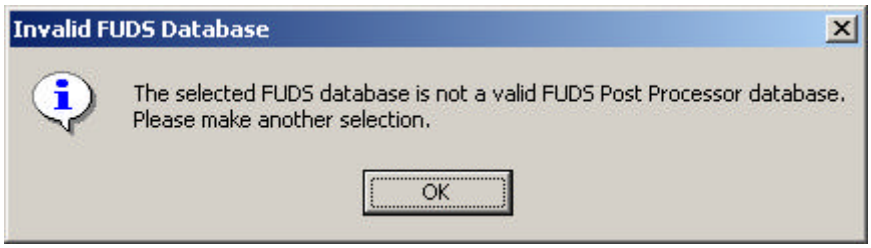
If, however, the any of the input parameters fail the Select Database tab validation, specific error messages are displayed on the screen. This section describes all possible errors that can occur on the Select Database tab.

- If the database specified in the RACER Database location field is a RACER 2002 (or earlier) database the following error message will be displayed.

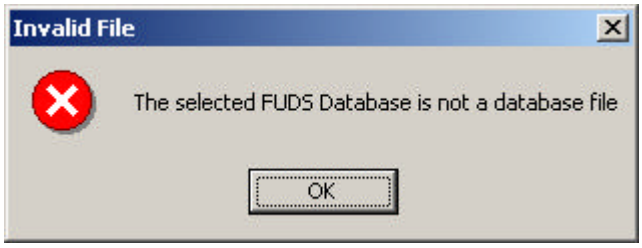
- If the database specified in the RACER Database location field is a database containing exported RACER estimates the following error message will be displayed.

- If the database specified in the RACER Database location field is a non-RACER database the following error message will be displayed.

- If the database specified in the FUDS Database location field is not a valid FUDS Database created by this version of the Post Processor or a new FUDS Database file to be created, the following error message will be displayed.



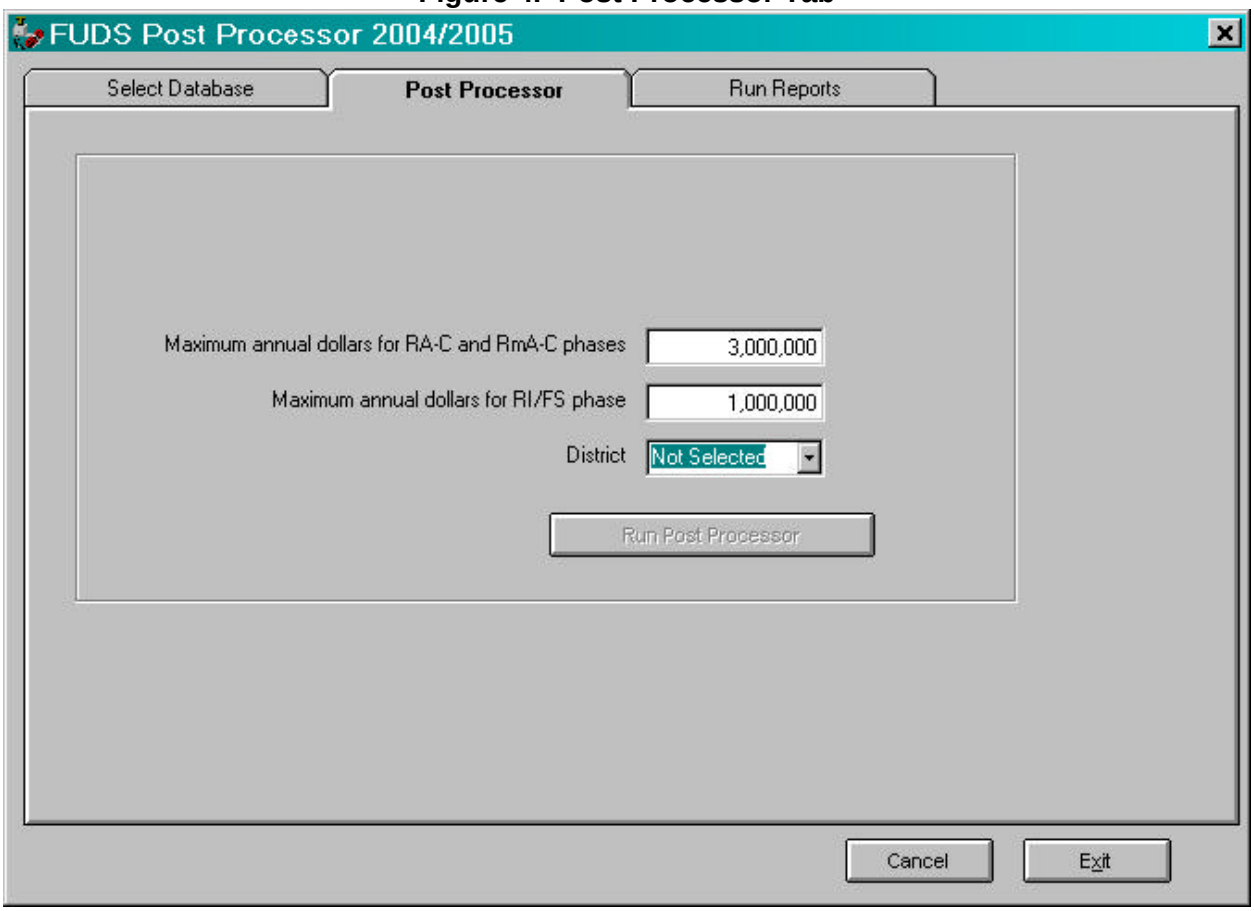
- If the file specified in the FUDS Database location field is not a valid .mdb file the following error message will be displayed.



Running the Post Processor

After the user has made valid selections for the processing parameters, the Accept button will become available. Upon clicking the Accept button, the Post Processor will automatically display the Post Processor tab (see Figure 4).

Figure 4. Post Processor Tab



The Post Processor tab contains the following fields, buttons and controls:

- **Maximum Annual Amounts –** Default amounts are displayed for RA-C, RmA-C and RI/FS phases. The user can enter different amounts.
- **District** – Dropdown list from which the user selects the district for which data is being processed. The executing district is determined based on the selected district.
- **Status Bar** – shows progress of the post-processing activities.

Step 1— Selecting Maximum Annual Amounts

Review the displayed amounts and enter new amounts if desired.

Step 2— Selecting the District

Make a selection from the dropdown list. The selection will determine the executing district for each phase.

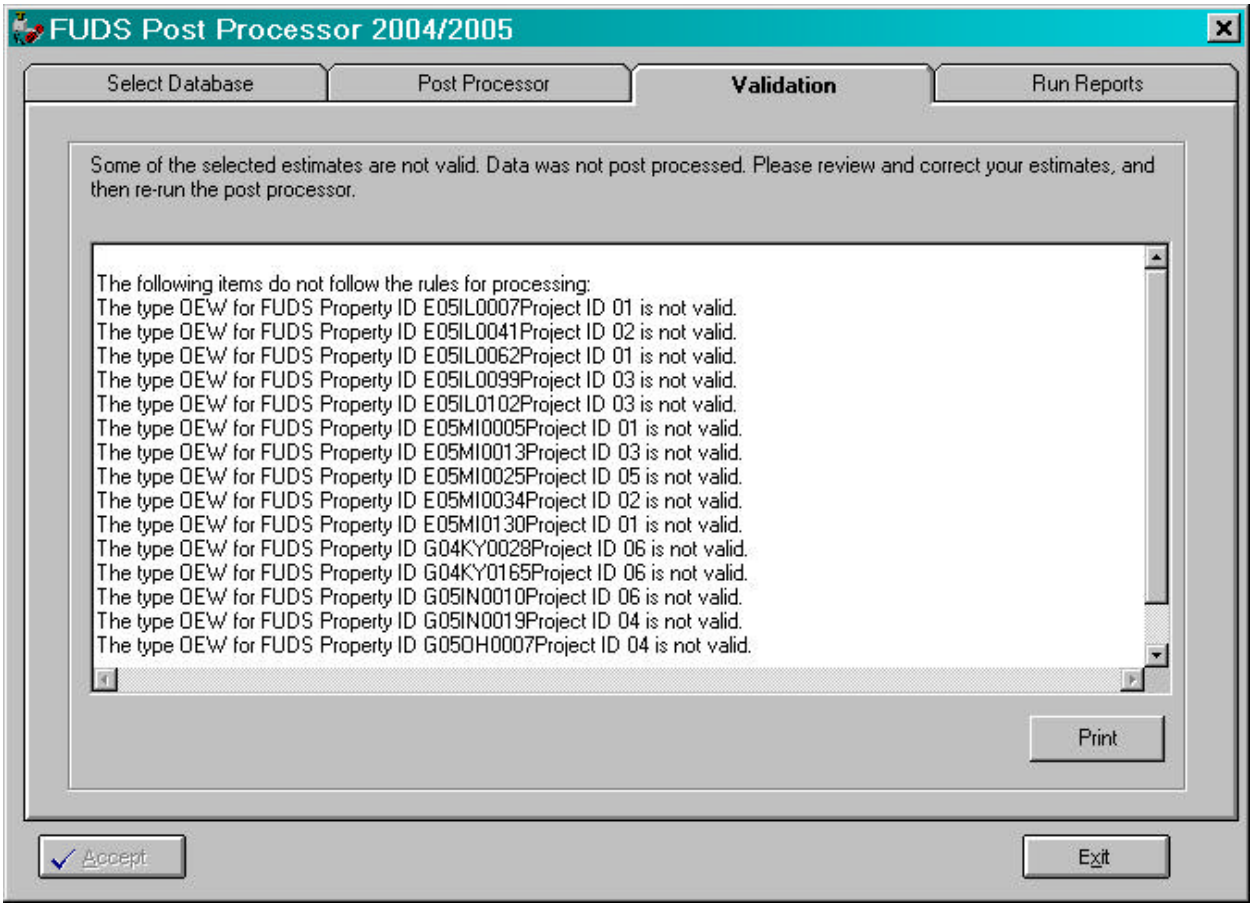
Step 3- Run Post Processor

Select the Run Post Processor button on the Post Processor tab to execute the post processing procedure. The status of the procedure is shown on the status bar displayed on the tab. A pause may occur at the beginning of the process if a new post processor database is being created. Please be patient.

Validation

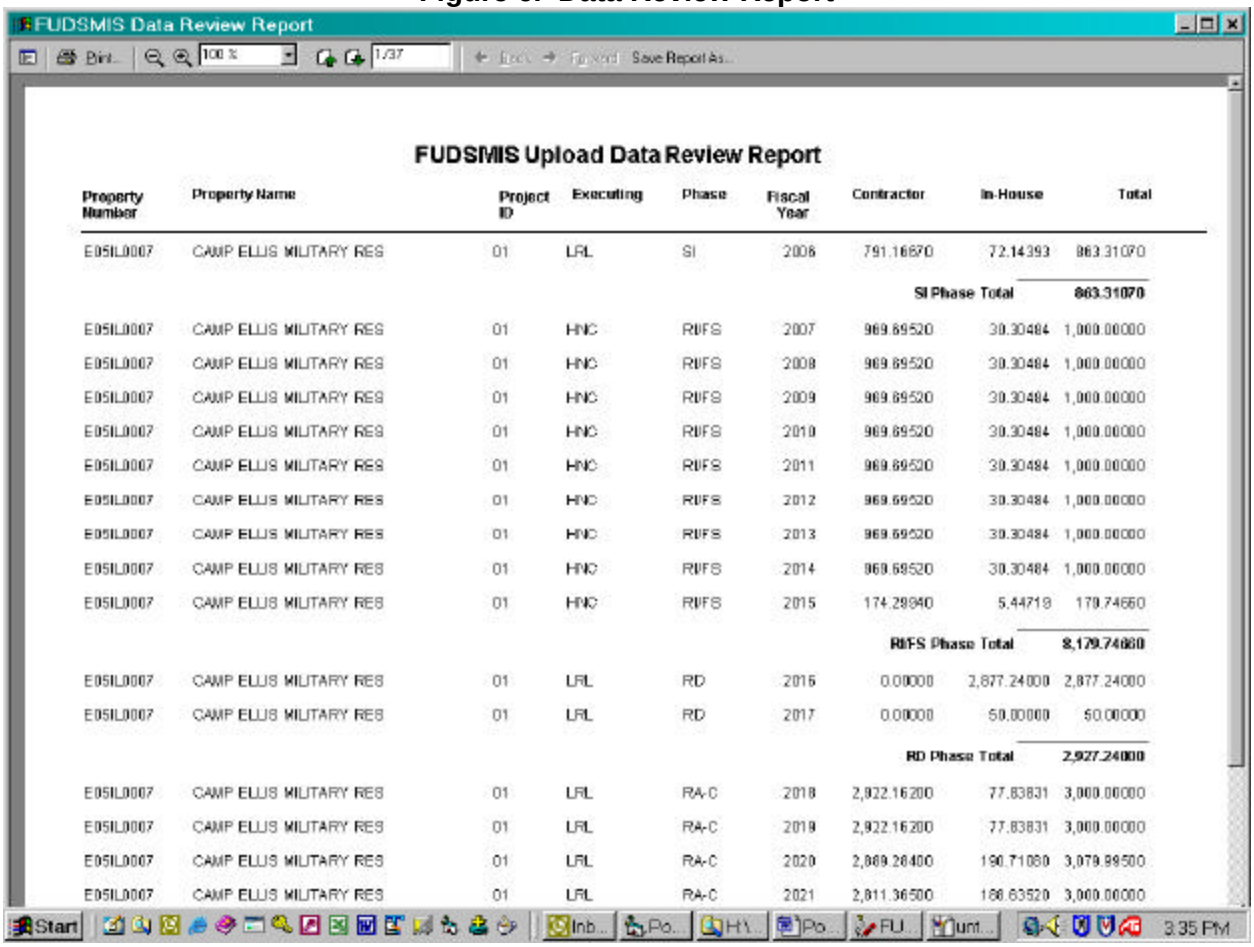
If the estimates are not valid, a screen will appear listing the nature of the problem, as shown in Figure 5. If this occurs, correct the problems in your RACER database and run the post processor again.

Figure 5. Validation Tab



If the estimates are valid, a data review report will be displayed to assist in reviewing the results, as shown in Figure 6.

Figure 6. Data Review Report



FUDSMIS Data Review Report

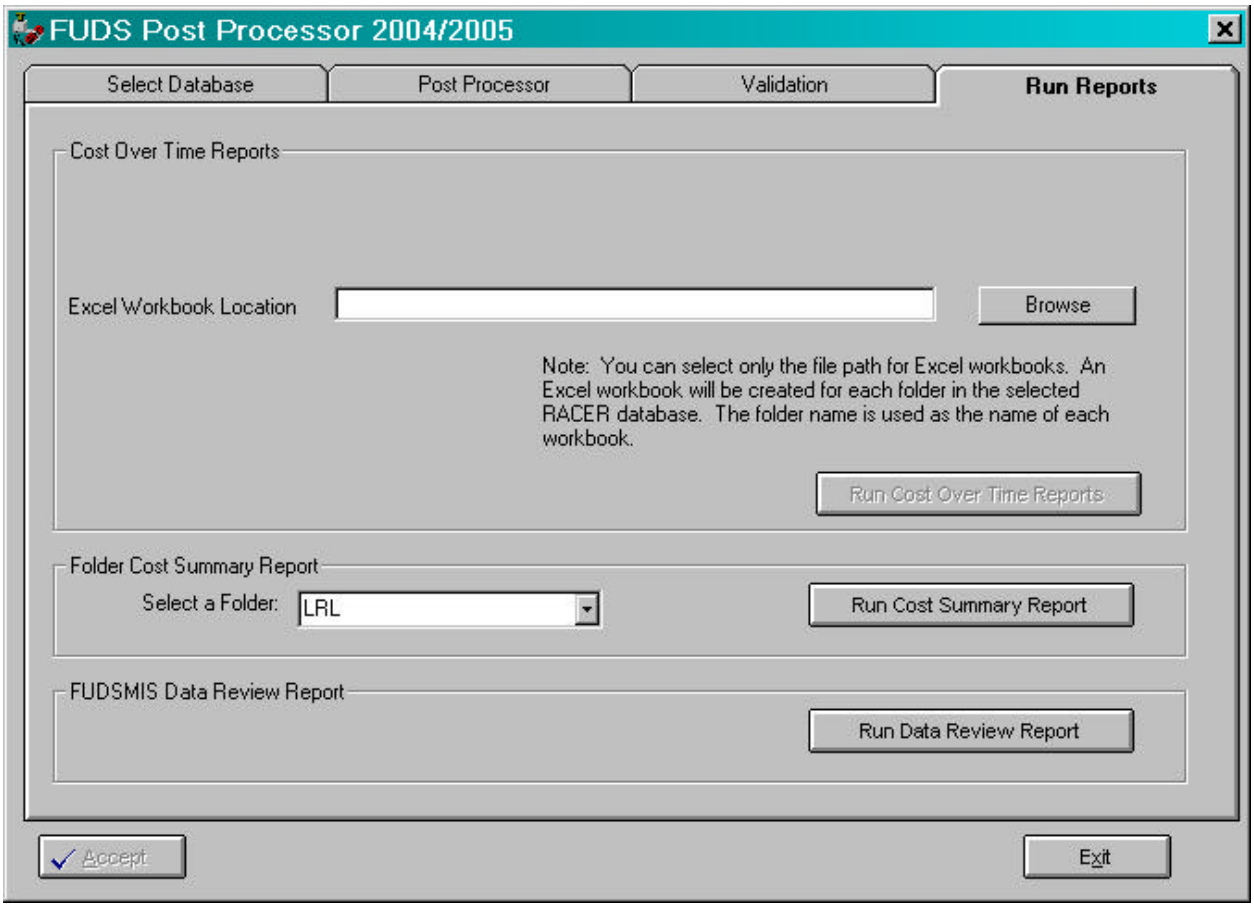
FUDSMIS Upload Data Review Report

Property Number	Property Name	Project ID	Executing	Phase	Fiscal Year	Contractor	In-House	Total
E05IL0007	CAMP ELLIS MILITARY RES	01	LRL	SI	2006	791.16870	72.14393	863.31070
						SI Phase Total		863.31070
E05IL0007	CAMP ELLIS MILITARY RES	01	HNC	RIFS	2007	969.69520	30.30484	1,000.00000
E05IL0007	CAMP ELLIS MILITARY RES	01	HNC	RIFS	2008	969.69520	30.30484	1,000.00000
E05IL0007	CAMP ELLIS MILITARY RES	01	HNC	RIFS	2009	969.69520	30.30484	1,000.00000
E05IL0007	CAMP ELLIS MILITARY RES	01	HNC	RIFS	2010	969.69520	30.30484	1,000.00000
E05IL0007	CAMP ELLIS MILITARY RES	01	HNC	RIFS	2011	969.69520	30.30484	1,000.00000
E05IL0007	CAMP ELLIS MILITARY RES	01	HNC	RIFS	2012	969.69520	30.30484	1,000.00000
E05IL0007	CAMP ELLIS MILITARY RES	01	HNC	RIFS	2013	969.69520	30.30484	1,000.00000
E05IL0007	CAMP ELLIS MILITARY RES	01	HNC	RIFS	2014	969.69520	30.30484	1,000.00000
E05IL0007	CAMP ELLIS MILITARY RES	01	HNC	RIFS	2015	174.29840	5.44719	179.74560
						RI/FS Phase Total		8,179.74560
E05IL0007	CAMP ELLIS MILITARY RES	01	LRL	RD	2016	0.00000	2,877.24000	2,877.24000
E05IL0007	CAMP ELLIS MILITARY RES	01	LRL	RD	2017	0.00000	50.00000	50.00000
						RD Phase Total		2,927.24000
E05IL0007	CAMP ELLIS MILITARY RES	01	LRL	RA-C	2018	2,922.16200	77.83831	3,000.00000
E05IL0007	CAMP ELLIS MILITARY RES	01	LRL	RA-C	2019	2,922.16200	77.83831	3,000.00000
E05IL0007	CAMP ELLIS MILITARY RES	01	LRL	RA-C	2020	2,889.28400	190.71080	3,079.99500
E05IL0007	CAMP ELLIS MILITARY RES	01	LRL	RA-C	2021	2,811.36500	188.63520	3,000.00000

After the user has selected databases on the first tab, the Reports tab will become available (see Figure 7).

Note: It is not necessary to run the Post Processor in order to generate Excel and Folder Cost Summary reports from the Run Reports tab. If the Post Processor has not been run, the Data Review Report may be blank. If the same post processor database has been used previously, the contents of the report will reflect the previous results if the Post Processor has not been run prior to generating the report.

Figure 7. Reports Tab



The Reports tab has three "frames":

- **Cost Over Time Reports** - The top frame contains a button that generates RACER Level 2 (Project) Cost Over Time (COT) reports in Excel with Markups and without escalation. The COT report for each of the projects in the RACER database is generated as a separate worksheet inside a single Excel workbook for each Folder. The tabs on each worksheet are named according to the FUDS Property ID and the FUDS Project ID as shown in Figure 7.
- **Folder Level Cost Summary Report** - The middle frame is for Folder Level Cost Summary Report (i.e., the "Jumbo report"). This frame contains the following fields and controls:
    - **Select a Folder** - A dropdown list that displays the names of the Folders in the RACER database that was selected on the first tab. The names are sorted alphabetically.
        - If the RACER database contains only one Folder, then the name of that folder will be the default selection in the dropdown list.
        - If the RACER database contains more than one folder, the name of the first folder in the RACER database will be the default selection in the dropdown list.
    - **Run Cost Summary Report** – Initiates running the Folder Level Cost Summary Report. Clicking on this button will automatically display the Cost

Summary Report window. Once the report has generated, it can be saved or printed using the existing *RACER* functionality.

Note: When the folder level cost summary report is run for very large RACER databases containing many estimates that the user's machine requires at least 1 GB of free space in order to perform correctly. Please be aware that if the user's machine does not have 1GB of free space the folder level cost summary report should not be run for large databases.

- **FUDSMIS Data Review Report** - The bottom frame contains a button that generates the FUDSMIS Data Review Report. Initiates running the FUDSMIS Data Review Report. Clicking on this button will automatically display the Report window. Once the report has generated, it can be saved or printed using the existing *RACER* functionality.

Running the Cost Over Time Report

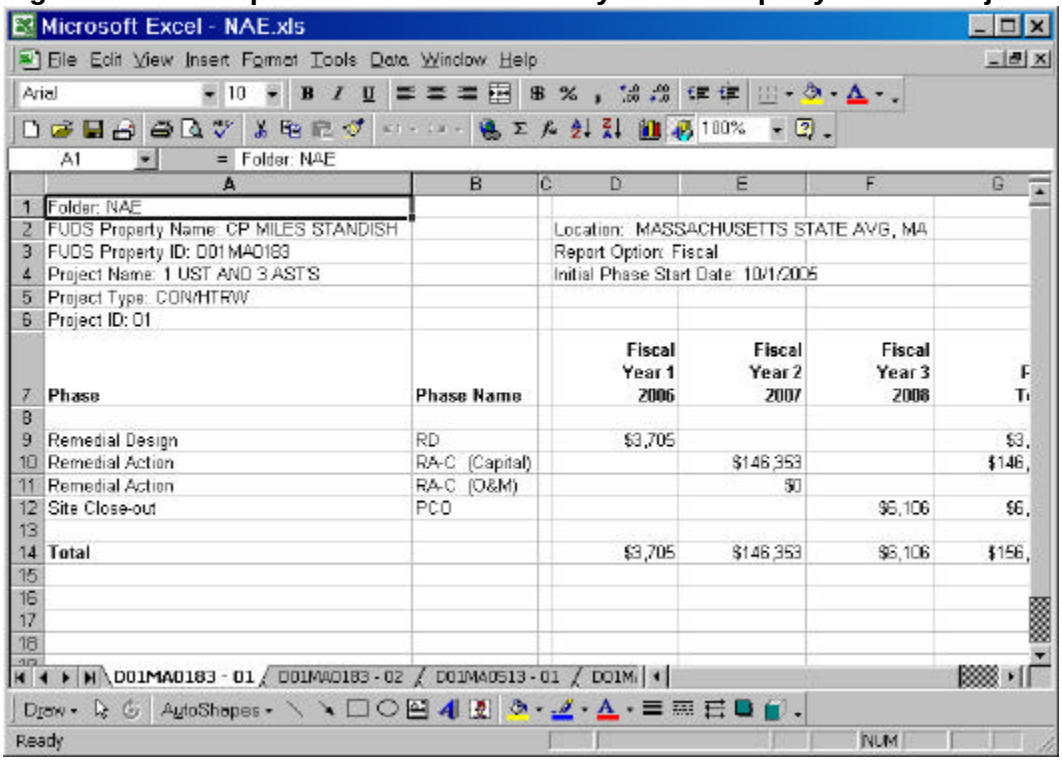
In order to run the Cost Over Time report, the folder location must be specified within the Excel Workbook Location field on the Run Reports tab. Select the browse button next to this field and navigate to the desired folder location.

Once a folder location is chosen, select the Accept button on the Run Reports tab. Upon the click of the Accept, the Run Cost Over Time Report button will become enabled. Click the Run Cost Over Time Report button and the Cost Over Time report will execute. The status of the generation of the Cost Over Time Report is displayed within the status bar. A message is displayed when processing is complete. This message is displayed in Figure 8 below. Users can then review reports by opening each workbook in Excel. Figure 9 provides an example of a project worksheet.

Note: Because a database may contain more than one folder, multiple workbooks may be generated. For this reason it is not practical to allow the user to specify the file location and the file name of the workbook.

Note: The generation of the Excel Cost Over Time Reports can be considerably demanding on a computer's CPU and memory. This is particularly true for larger databases that contain many estimates. It is recommended that these reports be run on a faster machine that can handle the demand. It is also helpful to close other applications.

Figure 8. COT Reports with Tabs named by FUDS Property ID and Project ID



Running the Folder Level Cost Summary Report

In order to run the Folder Level Cost Summary Report, select the folder name for which the Cost Summary Report should display within the Select Folder Name dropdown in the Folder Level Cost Summary Report section of the Run Reports tab.

Once a folder name is selected, select the Run Cost Summary Report button. The Cost Summary Report window will then display. This window will function exactly as it currently does in *RACER*. The selected values for the Folder Cost Summary report are:

- **FUDS Property tab** – All FUDS Properties in the Folder will be selected (see Figure 6).
- **Project tab** - All Projects for all FUDS Properties in the Folder will be selected (see Figure 7).
- **Print Options Tab** – Values as follows (see Figure 8):
  - **Phase Sorting** – By Start Date
  - **Show Assemblies** – Deselected
  - **Show Description** – Selected (notes entered by the Wrapper or estimator in the Level 1 and Level 2 Description fields will be included).
  - **Show Comments** – Selected (notes entered by the Wrapper or estimator in the Technology Comments tab will be included).

- **Show Tab Notes** – Deselected

If a user wished to accept the above defaulted values, they can immediately click on the print button. If they wish to tailor the report in any way, they can do so by selecting or deselecting the check boxes at each screen.

Figure 9. Cost Summary Report Window – FUDS Property Tab

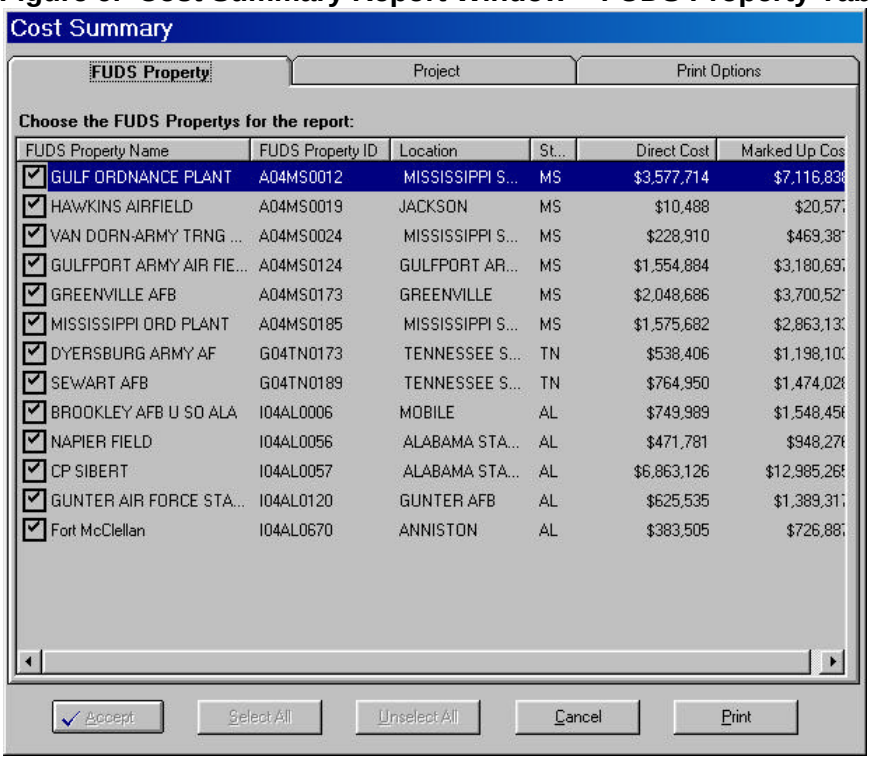


Figure 10. Cost Summary Report Window – Project Tab

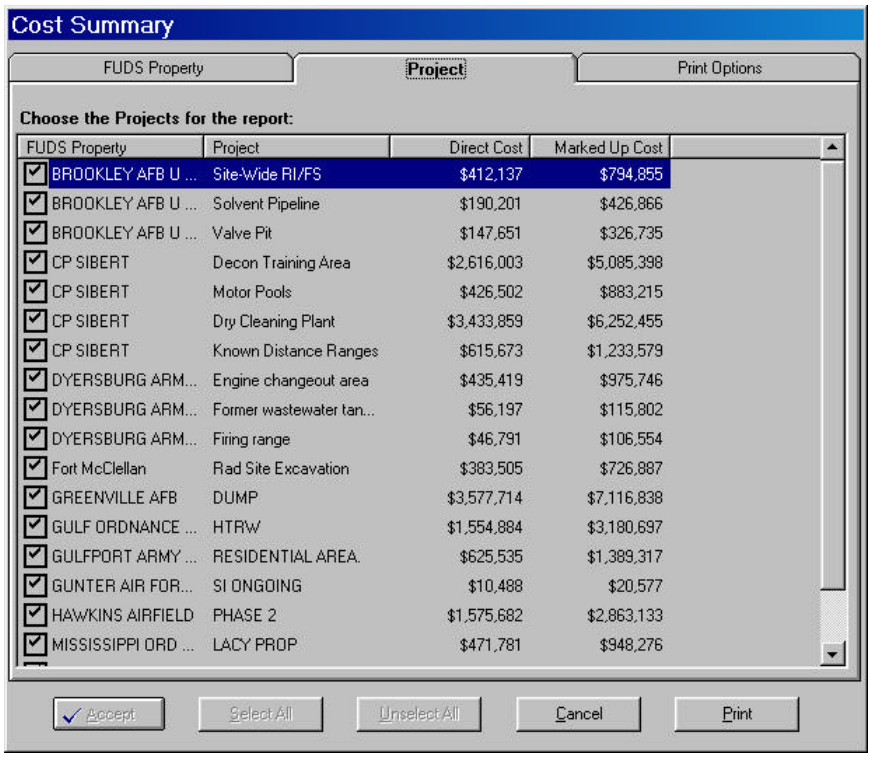
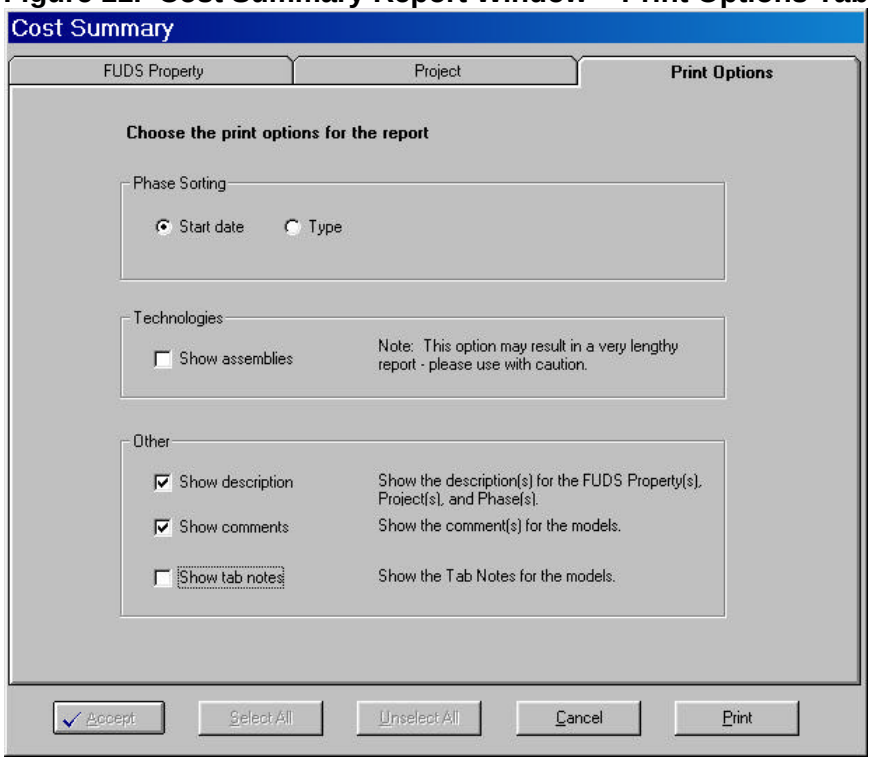


Figure 11. Cost Summary Report Window – Print Options Tab



Running the FUDSMIS Data Review Report

In order to run the FUDSMIS Data Review Report, click on the "Run Data Review Report" button. A report showing the data for uploading into the FUDSMIS system will be displayed. An example is shown in Figure 6.

Fiscal years shown in the report may differ from the RACER estimate in order to remain within the annual dollar limits specified. Processing for RA-C phases depends on whether any cost-over-time technology models are contained in the phase. If so, the fiscal year is the same as in the RACER estimate, even though the amount in a given year may exceed the annual dollar limit. If this occurs, it may be necessary to adjust the data before uploading into the FUDSMIS system.

For estimates in which the estimates for a Level 2 (project) have been broken into sub-projects (e.g. 01a, 01b, etc) each phase will be processed separately. After all processing is completed; the data will be summarized by fiscal year. This may result in an annual amount that exceeds the maximum annual dollars.

Exiting the Post Processor Application

The Post Processor application can be exited by selecting the Exit button at the bottom right-hand corner of the screen of each tab.

Appendix E
Quality Control Review and Supervisory Review Checklists

The attached checklist is to be used by Districts to perform the Quality Control Reviews and Supervisory Reviews of CTC estimates for FUDS projects.

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FUDS Cost-to-Complete Quality Control and Supervisory Review Checklists

FUDS Property Name: _____
FUDS Project Description: _____
FUDS Project Number: _____ **FFID:** _____

Quality Control Review Checklist:			
#	Question:	Yes	No
1.	**Was the estimating method (i.e., parametric, detailed, spreadsheet) appropriate for the type of project? (e.g., Was RACER used for projects without a Decision Document?)**		
2.	**Was the estimating tool properly used?**		
3.	**Was the estimate compared with the prior year estimate and the differences explained?**		
4.	**Is the person developing the estimate qualified by training and experience to use the estimating tool?**		
5.	**Is the estimate adequately documented to reflect what is known about the project?**		
6.	**Is the estimate adequately documented to explain why values in the estimate were used and/or changed?**		
7.	**Can the estimate be replicated using information in the estimate?**		
8.	**Was the estimate developed in current year dollars?**		
9.	**Does the reviewer believe this estimate provides a reasonable estimate for the FUDS Project?**		

Comments:

Quality Control Reviewer: _____ **Date:** _____

Supervisory Review Checklist:			
#	Question:	Yes	No
1.	**What estimating tool was used for the development of this estimate?** *(RACER, MCACES, etc.)*		
2.	**Is there an approved QC Plan in the District covering CTC development and review?**		
3.	**Was the process in the QC plan used during the development and review of this estimate?**		
4.	**Does the estimate reflect what is known about the project?**		
5.	**Does the estimate include reasonable assumptions to address project unknowns?**		
6.	**Does the estimate include all appropriate phases?**		
7.	**Is the estimate consistent with the project file?**		
8.	**Are the phase amounts in the estimate accurately reflected in the FUDSMIS LCP?**		
9.	**Is the CTC estimate archived in the permanent Project File and electronically in PIRS?**		
10.	**Does the supervisor agree the estimate has been properly constructed?**		

Comments:

Supervisor: _____ **Date:** _____

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Appendix F
District Quality Control Plan Template

Offices performing Quality Control and/or Supervisory Reviews must develop and use a Quality Control and/or Supervisory Review Plan that identifies the roles and responsibilities, estimate assignment and development requirements, review methods and procedures, archiving procedures, and other relevant steps. This Appendix contains a template for a District Quality Control Plan that may be useful to USACE Districts in their preparation of a District specific plan.

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DRAFT

District Quality Control (QC) Plan

For

Formerly Used Defense Sites (FUDS) Cost-To-Complete (CTC) Estimates FY2005

U.S. Army Corps of Engineers

1 INTRODUCTION

This document describes Quality Control (QC) procedures that will be followed by District personnel during the annual Cost-to-Complete (CTC) estimate preparation process for Formerly Used Defense Sites (FUDS). This QC Plan describes requirements for the following:

- Assigning estimate preparation responsibility
- Estimate development
- QC Review
- Supervisory Review
- FUDSMIS data entry
- Reporting/Archiving

2 REFERENCES

- ER 1110-1-12, Quality Management
- ER 200-1-3, Formerly Used Defense Sites (FUDS) Program Policy
- ER 1110-1-1300, Cost Engineering Policy and General Requirements
- ER 1110-1-1301, Hazardous, Toxic and Radioactive Waste (HTRW) Cost Engineering
- Program Management Plan for Formerly Used Defense Sites (FUDS) Information Improvement Plan (FIIP), March 2004
- Instructions for Developing FUDS CTC Estimates, October 2004

3 QC PROJECT DELIVERY TEAM

The Project Delivery Team (PDT) is a multidisciplinary team brought together to support the USACE District Project Manager for the purpose of executing the FUDS project. Membership on the team may include Estimators, Contractors, USACE CXs, or others trained in auditing principles and experienced in developing CTC estimates. Members of the PDT are identified in the following paragraphs. Qualifications statements of individual PDT members are provided as attachments to this QC Plan.

3.1 Project Manager

The District FUDS Project Manager (PM), as head of the PDT, leads a multidisciplinary team brought together to support the planning, programming, budgeting, execution, and reporting for the FUDS project. Membership on the team encompasses all disciplines needed for project performance.

3.2 Estimate Developers

Estimate Developers will be responsible for preparing and updating FUDS CTC estimates. They may include Cost Estimators, Project Managers, or others with the necessary training and experience. Estimate Developers must be trained in the preparation of FUDS CTC estimates and must also be trained in the use of RACER or other applicable cost engineering software.

3.3 Other PDT Members

Technical Specialists are critical to execution of the project. Technical specialists include counsel, PAO, engineers, geologists, chemists, and others that support the PM. These disciplines provide the Estimate Developer with the scope of the project and the technical assumptions needed to develop an estimate that is representative of the project.

4 SCHEDULE

Estimate development and review will be in accordance with the schedule outlined in ER 200-1-3. Modifications to the schedule may be made by HQUSACE.

5 CTC ESTIMATE REQUIREMENT

CTC estimates are required for all pending or approved FUDS projects where a future environmental liability exists to the FUDS program. By definition, this includes:

- All BD/DR projects that have not been declared No DoD Action Indicated (NDAI) in FUDSMIS, and
- All other project types where regulatory concurrence has not been achieved and recorded in FUDSMIS.

6 CTC ESTIMATE DEVELOPMENT ASSIGNMENT

FUDSMIS automatically generates a list of projects requiring preparation/updating of estimates. FUDSMIS also assigns default estimate preparation responsibility to either the District or one of the CXs based on a set of predetermined rules. The District Program Manager (PgM) will verify the list is complete and accurate. The PgM must make modifications to the estimate development assignment list in FUDSMIS prior to the first week of October. The Division Program Manager will have until the second week of October to either change or direct the District to change estimate development assignments and to approve the final assignments in FUDSMIS.

7 CTC ESTIMATE DEVELOPMENT

A CTC estimate is prepared to determine the expected total remaining cost of response actions at a FUDS project. Total project CTC costs include budget year and beyond costs for all remaining project phases. Refer to ER 200-3-1, Table 4-4, for the appropriate phases for each project category. All phases of work must be identified, adequately quantified, and estimated.

Estimates will be prepared in accordance with the references listed in this QC Plan. In addition, HQUSACE may provide specific estimate preparation instructions. The MM/HTRW CX's may provide guidance or recommended practices that must be included in the District QC Plan.

Estimates will be prepared in RACER or using other methods approved by the PM when information is limited and it is determined that a detailed cost estimate cannot be developed.[1] Estimates will be prepared in MCACES/MII or using other methods approved by the PM when detailed information is available. The Estimate Developer will provide completed estimates to the PM for QC Review.

8 FUDSMIS DATA ENTRY

The PM will be responsible for ensuring phase dollar amounts are entered correctly into FUDSMIS in the LCP. FUDSMIS data entry will not occur until the QC Review has been completed. Data may be uploaded into FUDSMIS manually or through an automated process.

9 QUALITY REVIEWS

The quality management of each FUDS CTC District estimate includes both a QC Review and a Supervisory Review. Requirements for these reviews are discussed in the following paragraphs.

9.1 QC Reviews

9.1.1 QC Reviewers

The QC Reviewer will be designated by the PM. QC Reviewers must be trained in the preparation of FUDS CTC estimates. They must also be trained in the use of RACER or other applicable cost engineering software.

9.1.2 QC Review Objectives

A QC Review will be performed on each project estimate. The purpose of this review is to evaluate the estimate from a technical point-of-view, to ensure that the estimate is properly constructed and the person developing the estimate is qualified. With the assistance of the PDT, the QC Reviewer will ensure the estimate complies with the questions shown on the attached QC Review Checklist. If it does not, comments will be generated by the QC Reviewer and provided to the Estimate Developer to be resolved. Once all comments have been resolved, each question on the QC Review Checklist will be marked yes and signed by the QC Reviewer to indicate approval of the estimate by the PDT. This checklist will be maintained with the estimate and stored in the permanent project file and electronically in the FUDS Project Information Retrieval

[1] USACE policy requires RACER be used for HTRW and MMRP projects before the decision document is finalized and for Con/HTRW and BD/DR projects before the design is completed. Refer to ER 200-3-1, paragraph E-11.1.

System (PIRS). QC Review comments and responses must also be maintained in the permanent project files.

9.2 Supervisory Reviews

9.2.1 Supervisory Reviewers

The PgM is at least one level above and the functional equivalent of a supervisor for the Project Manager (PM). The PgM will perform a Supervisory Review of each project estimate. As functional head of the FUDS program within the District, the PgM has familiarity with the project being reviewed and has equivalent qualifications of the PM.

9.2.2 Supervisory Review Objectives

The primary purpose of the Supervisory Review is to ensure the estimate reflects what is known about the project. The PgM will ensure the estimate complies with the questions shown on the attached Supervisory Checklist. If it does not, comments will be generated by the PgM and provided to the PM to be resolved. Once all comments have been resolved, each question on the Supervisory Review Checklist will be marked yes and signed by the PgM. This checklist will be maintained with the estimate and stored in the permanent project file and electronically in the FUDS Project Information Retrieval System (PIRS). Supervisory Review comments and responses must also be maintained in the permanent project files. If the Supervisory Review results in significant changes to the estimate, the QC Review process will have to be repeated on the revised estimate.

9.3 Review Checklists

Both the QC Review Checklist and the Supervisory Review Checklist will be on the same form, ensuring the two will not become separated. There will be separate signature boxes on the form for the QC Reviewer and the Supervisor. The QC Review Checklist/Supervisory Review Checklist is provided as an attachment to this QC Plan.

10 REPORTING/ARCHIVING

After the CTC process has been completed, the PM will be responsible for ensuring that estimates and accompanying data are correctly stored in the District project files and the appropriate project data has been archived on PIRS.

10.1 District Project File Requirements

Each project file must include the following:

- Electronic copy of estimate or information on where an electronic copy of the estimate is located.
- Report showing the project costs by phase with a total CTC amount. For RACER estimates, the Cost-Over-Time report will be used.

- Signed QC/Supervisory Review Checklist.
- QC/Supervisor Review comments and comment responses.

10.2 Archiving Data on PIRS

All completed estimates will be placed onto PIRS (ftp://mvrpirs.mvr.usace.army.mil/ftpsite/). PIRS administrators will retrieve these data files and place them on the PIRS web site (https://mvrpirs.mvr.usace.army.mil/fuds.cfm). The following will be submitted to PIRS for each project:

- Electronic copy of estimate. For RACER developed estimates, the file is the RACER Property export file containing an individual project estimate, not an entire database.
- Report showing the project costs by phase with a total CTC amount. For RACER estimates, this would be the Cost-Over-Time Report (Can be in Excel or pdf format)
- Signed QC/Supervisory Review Checklist (pdf format)

10.3 FTP Site Passwords

The PgM has been provided with a user id/password to allow access to the secure PIRS ftp site. The PgM will be responsible for distributing the password to personnel who will be involved in placing files onto the ftp site. The password will allow each user to place files into their associated District folder and create sub folders.

10.4 PIRS Data Naming Convention

File names must be correctly formatted to the FUDS Information Improvement Plan naming convention. This ensures the ability to correctly store and retrieve these estimates. Cost-to-Complete estimates are filed in the Site Management Section 01.15 Cost-to-Complete. The following is the required naming convention:

Property # Project # _Section # _ Fiscal Year_ Permanent File Designation.File Type

Example:

Project Estimate: G03WV001541_01.15_2005_p.mdb

Cost-Over-Time Report: G03WV001541_01.15_2005_p.xls

QC/Supervisory Review Checklist: G03WV001541_01.15_2005_p_qcsc.pdf

Each District will have a folder on the ftp site to store data. Estimates must be placed in the correct folder. Estimates placed in the ftp site folders will be moved onto the PIRS website by PIRS personnel. The PgM must verify all their project estimates are moved onto the PIRS website.

FUDS Cost-to-Complete Quality Control and Supervisory Review Checklists

FUDS Property Name: _____
FUDS Project Description: _____
FUDS Project Number: _____ **FFID:** _____

Quality Control Review Checklist:			
#	Question:	Yes	No
1.	**Was the estimating method (i.e., parametric, detailed, spreadsheet) appropriate for the type of project? (e.g., Was RACER used for projects without a Decision Document?)**		
2.	**Was the estimating tool properly used?**		
3.	**Was the estimate compared with the prior year estimate and the differences explained?**		
4.	**Is the person developing the estimate qualified by training and experience to use the estimating tool?**		
5.	**Is the estimate adequately documented to reflect what is known about the project?**		
6.	**Is the estimate adequately documented to explain why values in the estimate were used and/or changed?**		
7.	**Can the estimate be replicated using information in the estimate?**		
8.	**Was the estimate developed in current year dollars?**		
9.	**Does the reviewer believe this estimate provides a reasonable estimate for the FUDS Project?**		

Comments:

Quality Control Reviewer: _____ **Date:** _____

Supervisory Review Checklist:			
#	Question:	Yes	No
1.	**What estimating tool was used for the development of this estimate?**		
2.	**Is there an approved QC Plan in the District covering CTC development and review?**		
3.	**Was the process in the QC plan used during the development and review of this estimate?**		
4.	**Does the estimate reflect what is known about the project?**		
5.	**Does the estimate include reasonable assumptions to address project unknowns?**		
6.	**Does the estimate include all appropriate phases?**		
7.	**Is the estimate consistent with the project file?**		
8.	**Are the phase amounts in the estimate accurately reflected in the FUDSMIS LCP?**		
9.	**Is the CTC estimate archived in the permanent Project File and electronically in PIRS?**		
10.	**Does the supervisor agree the estimate has been properly constructed?**		

Comments:

Supervisor: _____ **Date:** _____

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Appendix G
HTRW Center of Expertise Quality Control Plan

The HTRW and MM Centers of Expertise will perform the Quality Control Review for estimates developed by those offices either in-house or under contract. The District will remain responsible to conduct the Supervisory Review of these estimates. This Appendix contains the HTRW CX Quality Control Plan for performing QC Reviews of CX developed estimates. Districts should incorporate this QC Plan as an addendum to their overall Plan for performing Quality Control and Supervisory Reviews. The MM CX Quality Control Review will follow the same basic process as contained in this appendix with exceptions as noted in paragraph 6.7.2.3.

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HTRW-CX Quality Control Plan
For
QC Reviews Performed on FUDS CTC Estimates
FY 2005
U.S. Army Corps of Engineers

1 General

The HTRW-CX will perform QC Reviews on all FUDS CTC estimates developed or updated via contract with the CX. This document outlines quality procedures used by the CX during their QC Reviews of estimates prepared by contract. This document shall be included as a supplement to District QC Plans for the FUDS CTC estimate preparation process.

2 CX QC Reviewers

All QC Reviewers are trained in the preparation of FUDS CTC estimates. They are also trained in the use of RACER or other applicable cost engineering software. Qualification statements of all CX QC Reviewers are attached to this document.

3 CX QC Review Objectives

The purpose of the CX QC CTC estimate reviews is to evaluate the estimate from a technical point-of-view; to ensure the estimate is properly constructed and to ensure the person developing the estimate is qualified. With the assistance of the Project Development Team (PDT), the QC Reviewer will check the estimate against the questions shown on the QC Review Checklist. If deficiencies are noted in the estimates, comments will be generated by the QC Reviewer and provided to the Contractor to be resolved. Once all comments have been resolved, each question on the QC Review Checklist will be marked yes and signed by the QC Reviewer to indicate approval of the estimate. This checklist will be maintained with the estimate and stored in the District's permanent project file and electronically in the FUDS Project Information Retrieval System (PIRS). QC Review comments and responses will also be maintained in the permanent project files.

4 CX QC Review Logistics

The following paragraphs outline the logistics of how project estimates and CX performed QC Reviews will be provided to the to the Districts.

4.1 HTRW CX QC Responsibilities

A QC Review will be performed by the CX on each estimate assigned to the CX.

- Results from the QC Reviews will be recorded on the QC/Supervisory Review form.
- The QC/Supervisory Review form will be sent to the District to complete the Supervisory Review portion of the form.
- The appropriate phase cost data will be entered into FUDSMIS.
- The District will be notified the QC Reviews for their District have been completed.

4.2 Electronic Transfer of CTC Estimates to Districts

Once the QC Review has been performed by the CX and the appropriate data has been uploaded to FUDSMIS, the Districts will be directed to an FTP site to download the CTC estimates. The FTP site will contain the following:

- RACER mdb files (all projects).
- Separate RACER mdb export file and Cost-Over-Time (COT) Report for each project (all projects).
- The Rules and Assumptions document used as the basis for developing the batch processed MMRP project estimates.

4.3 District Responsibilities

The District FUDS Program Manager will perform a Supervisory Review of all estimates provided by the CX. The following tasks must be performed by the District:

- Perform a Supervisory Review of each estimate.
- Provide comments as required to the CX for incorporation by the Contractor.
- Complete Supervisory Review on revised estimates.
- Fill out and sign Supervisory Review portion of the QC/Supervisory Review forms.
- Store estimates, reports, QC/Supervisory Review forms, and comments in the District project files.
- Archive estimate, Cost-Over-Time Report, and QC/Supervisory Review forms on PIRS.

5 Standard Operating Procedure (SOP) for QC Review of Contractor Prepared Estimates

The following sections describe the QC Review process that will be performed by the HTRW-CX on Contractor prepared estimates. The QC process for MMRP estimates will be slightly different than for HTRW, CON/HTRW, and BD/DR estimates. Therefore, two different SOPs were prepared:

- SOP for MMRP estimates.
- SOP for HTRW, CON/HTRW, and BD/DR estimates.

5.1 SOP for MMRP Estimates

The following tasks will be performed for each Contractor prepared RACER database containing MMRP estimates.

5.1.1 Determine the Estimates to be Completed by the CX

1. Review the project assignment reports in FUDSMIS.
    - Go to FUDSMIS, under Reports, CTC QA/QC, CTC Estimate Responsibility, District Report.
    - Select the District.

2. Review the project data file for excluded projects.
    - To Review the project data file open the ACCESS database < DIV-DIS.mdb, for example LRD-LRL.mdb.
    - Go to the tables.
    - Open the Project Table.
    - Verify that the NON-Excluded projects match the list of MMRP projects from FUDSMIS.

3. If the lists do not match, reconcile any differences via communication with the District.

4. Finalize the lists by coordinating with WES to ensure the project assignment list in FUDSMIS is correct.

5.1.2 Verify All Estimates have been Developed

1. Open the RACER database for the District. Compare the project list generated in Paragraph 5.1.1 to ensure it matches the level two projects in the database.

2. For projects that do not have an estimate developed, ensure that a statement is made on the QC/Supervisory Review form as to why the estimate has not been completed and that the NO ESTIMATE Excel spread sheet has the project listed.
    - No estimate is created when the FUDSMIS data field for Total Property Acreage is null or zero and/or the MMR data is not populated.
    - A note to the District will be placed on the QC/Supervisory Review form for the project stating the following: “The project does not have a CTC estimate because the FUDSMIS data elements used to generate the estimate have not been populated. The District needs to contact HQ, HNC, MVS, and MVR to ensure that an ASR is to be completed and the data elements used to generate the estimate are populated from the completed ASR.”
    - Ensure that when projects are uploaded into FUDSMIS, the list of projects with zero costs are provided to WES and that they zero out the current estimate in FUDSMIS, if there is an estimate in FUDSMIS.

5.1.3 Generate QC/Supervisory Review Form and Perform CX QC Review

1. Generate a QC review form for each project estimate and zero cost estimates
2. Verify that the TOTAL PROPERTY ACREAGE FUDSMIS DATA Field and the property description, history, and the project description do not conflict. If they do conflict, a comment will be made to the District to reconcile the conflict for future updates to the estimate.

- Standard Comment, “The FUDSMIS Data Field for Total Property Area (from FDE) does not match the FUDSMIS property description field. Ensure **Property** description field is modified to match the Total Property Acreage (from FDE) data field in FUDSMIS.
- Standard Comment, “The FUDSMIS Data Field for Total Property Area (from FDE) does not match the FUDSMIS **Project** description field. Ensure Project description field is modified to match the Total Property Acreage (from FDE) data field in FUDSMIS.

3. Verify that the upload amount in the upload file and the COT amount match for each Project.
   - Open the ACCESS database <DIV-DIS-Post>
   - Go to the Tables.
   - Go to XFUDSMIS.
   - Under Tools Menu select Analyze with Excel.
   - In Excel, select all the project costs, IH and CON for the specific project. Compare the WFUDSMIS data to total from COT report. If there is a discrepancy, make a note and change XFUDSMIS table in ACCESS so there is not a discrepancy.

4. Verify that the Cost Comparison report has the correct amounts from the EL FY04 Spread sheet and the COT report.

5. Populate the Reviewer Field in RACER.

6. Send the RACER database back to ET for generation of separate project Export files and COT Report files.

7. Verify that the Export files and COT files have been created and are named appropriately for each Project.

5.2 SOP for HTRW, CON/HTRW, and BD/DR Estimates

The following tasks will be performed for each Contractor prepared RACER database containing HTRW, CON/HTRW, and BD/DR estimates.

5.2.1 Determine Estimates to be Completed by the CX

1. Review the project assignment reports in FUDSMIS
    - Go to FUDSMIS, under Reports, CTC QA/QC, CTC Estimate Responsibility, District Report.
    - Select the District.

2. Compare the Earthtech (ET) approved list of projects with the finalized list in FUDSMIS and determine differences.
    - Ensure that all projects on ET's list match the designation for the CX to complete the estimate.
    - Note any differences so the list in FUDSMIS can be changed.
    - Check to ensure ET's list of Property/Project numbers and project categories match the list as in FUDSMIS.

3. Finalize the lists in FUDSMIS by coordinating with the District, Division and WES on changing the project assignment status.

5.2.2 Verify all Estimates have been Developed

Open each District's RACER mdb file with RACER.

- Compare the list of projects in the RACER database against the approved list of projects that ET was contracted to generate estimates for.
- For projects that ET was to prepare estimates for, but did not, make sure a statement was made as to why the estimate was not prepared and coordinate with the District.

5.2.3 Generate QC/Supervisory Review Form and Perform CX QC Review

1. Compare the estimates content and format against Section 5, Cost Estimating Standards in the approved Work Plan that ET was contracted to follow during the preparation of estimates.
    - Ensure Level One, Two and Three Screens are filled out completely in conjunction with the approved standards.
    - CX personnel will fill out "Reviewer Information" screen at Level Two.

2. Review Level 4 estimate information to ensure the following:
    - The appropriate technologies are used based on the contaminant and media specified.
    - Required and secondary parameter input data appears reasonable.
    - Appropriate notes have been added to the Level 4 portion of the estimate.
    - Appropriate assemblies have been included in the estimate.
    - Assembly quantities and unit prices appear reasonable.

3. Verify that the upload amount in the upload file and the COT amount match.
    - Open the ACCESS database <DIV-DIS-Post>.
    - Go to the Tables.

- Go to XFUDSMIS.
- Under Tools Menu select Analyze with Excel.
- In Excel, select all project costs (IH and CON) for the specific project. Compare the XFUDSMIS data to the total project cost from the COT report to ensure they match. There may be some small rounding differences, however, any large differences will be investigated and fixed to ensure the totals in the COT Report and XFUDSMIS file match.

4. Verify that the Cost Comparison report has the correct amounts from the EL FY04 Spread sheet and the COT report.

5. Send the RACER database back to ET for generation of separate project Export files and COT Report files.

6. Verify that the Export files and COT Report files have been created and are named appropriately for each project.

Qualification Statements
For
HTRW-CX QC Reviewers

Kate M. Peterson
Qualifications for QC Review of FUDS CTC Estimates
18 January 2005

Position: HTRW Center of Expertise, Environmental Cost, Compliance and Technology Branch, Civil Engineer

Certifications:

- Professional Engineer, State of Nebraska
- Tri-Service Certified Cost Engineer

Education and Training:

- Bachelor of Science, Civil Engineering with a Construction Management Option, University of Wyoming, 1987
- Certified as Trained in RACER
- Certified as Trained in RACER Train the Trainer
- Certified as Trained in MCASCES
- FUDS CTC Training
- Network Analysis and Scheduling

Professional Experience:

1994-Present. HTRW-CX Environmental Cost, Compliance, and Technology Branch

- Responsible for assisting with the development of HTRW cost engineering policy / guidance.
- Member of the Tri Services Automated Cost Engineering Systems (TRACES) Unit Price Book Committee and the Remedial Action Cost Engineering Requirements (RACER) Technical Users Group and Steering Committee.
- Review District FUDS CTC estimates.
- Provide training to District employees on the FUDS CTC cost estimate preparation process.
- Provide RACER training to District employees.

1988-1994. Cost Engineering Branch, Omaha District

- Major responsibilities at the District included preparation of cost estimates from military, civil, and HTRW design packages.

Contact Information:

Mailing Address:
USACE - HTRW Center of Expertise Attn: Kate Peterson HX-T
12565 West Center Road
Omaha, NE 68144

Telephone: (402) 697-2612

E-mail: katherine.m.peterson@mrd01.usace.army.mil

Rick L. Osborn
Qualifications for QC Review of FUDS CTC Estimates
18 January 2005

Position: HTRW Center of Expertise, Environmental Cost, Compliance, and Technology Branch

Certifications: DoD Tri-Service Certified Cost Engineering Technician

Education and Training:

- Associate Degree in Arts and Sciences from Iowa Western Community College in 1978
- Certified as Trained in RACER
- Certified as Trained in RACER Train the Trainer
- Certified as Trained in MII

Professional Experience:

- 20 years experience in the cost engineering field. Development of various estimates for military construction, civil works, and HTRW projects for the Omaha District.

- Responsible for assisting Districts and Divisions with HTRW cost engineering policy/guidance issues, HTRW cost estimate review, and updating/maintaining cost engineering software and databases.

- Other duties include training the RACER estimating software and mentoring District cost engineers on the development of budgetary estimates used in the various Corps wide supported programs.

- Member of the RACER User Group which performs annual reviews, testing and updates of the software.

Contact Information

Mailing Address: U.S. Army Corps of Engineers
HTRW Center of Expertise
Attn: CENWO-HX-T (Rick Osborn)
12565 West Center Road
Omaha, NE 68144-3869

Telephone: 402-697-2426
FAX: 402-6972639

E-mail: rick.l.osborn@usace.army.mil

Steven M. Butler
Qualifications for QC Review of FUDS CTC Estimates
18 January 2005

Position: HTRW Center of Expertise, Environmental Cost, Compliance and Technology Branch, Civil Engineer

Certifications: Professional Engineer, State of Nebraska

Education and Training:

- Bachelor of Science, Civil Engineering, University of Nebraska, 1981
- Master of Science, Civil Engineering, University of Nebraska, 1993
- Certified as Trained in RACER
- Certified as Trained in RACER Train the Trainer
- Certified as Trained in MII

Professional Experience:

2003-Present. HTRW-CX – Environmental Cost, Compliance, and Technology Branch

- Review District FUDS CTC estimates.
- Provide training to District employees on the FUDS CTC cost estimate preparation process.
- Provide RACER training to District employees and AEC personnel.
- Assist in the development of the RACER cost estimating software.

1991-2003. HTRW-CX – Geoenvironmental and Process Engineering Branch

- Provide technical assistance to Corps of Engineers Districts on geotechnical issues.
- Write and review standard specifications and technical manuals.
- Develop and present geotechnical training courses.

1989-1991. Corps of Engineers, Omaha District, Geotechnical Branch

- Project engineer responsible for investigations and designs of remediation projects.

1984-1989. Corps of Engineers, Missouri River Division Laboratory, Soils Section

- Supervised the Soils Testing Section.

1981-1984. Corps of Engineers, Omaha District, Monitoring and Evaluation Branch

- Performed inspections on dams, levees, and bridges.

Contact Information:

Mailing Address:
USACE - HTRW Center of Expertise Attn: Steve Butler HX-T
12565 West Center Road
Omaha, NE 68144
Telephone: (402) 697-2656
E-mail: steve.m.butler@usace.army.mil

Robert J. Dworkin
Qualifications for QC Review of FUDS CTC Estimates
18 January 2005

Position: HTRW Center of Expertise, Environmental Cost, Compliance and Technology Branch, Civil Engineer

Certifications: Professional Engineer, State of Kansas

Education and Training:

- Bachelor of Science, Civil Engineering, University of Kansas, 1974
- Certified as Trained in RACER
- Certified as Trained in RACER Train the Trainer
- Certified as Trained in MII

Professional Experience:

- One year experience working in the Cost Engineering Team of the Environmental Cost, Compliance and Technology Branch, HTRW-CX, Omaha, NE.
- Project Manager for Contract to perform FUDS CTC Estimates, March 2004 to present.
- Performed QA of LRD and SAD FUDS CTC Estimates Jan – Mar 2004.
- Thirteen years experience as FUDS Program Manager for Omaha District.

Contact Information:

Mailing Address:
USACE - HTRW Center of Expertise Attn: Bob Dworkin HX-T
12565 West Center Road
Omaha, NE 68144

Telephone: (402) 697-2526

E-mail: Robert.J.Dworkin@usace.army.mil

Lindsey Lien
Qualifications for QC Review of FUDS CTC Estimates
18 January 2005

Position: HTRW Center of Expertise, Geoenvironmental and Process Engineering Branch, Environmental Engineer

Certifications: Professional Engineer, State of Nebraska

Education and Training:

- Bachelor of Science, Civil Engineering, South Dakota State University, 1978
- Master of Science, Civil/Environmental Engineering, University of Nebraska, 1985
- Certified as Trained in RACER

Professional Experience:

1988-Present. HTRW-CX – Geoenvironmental and Process Engineering Branch

- Provide technical assistance to Corps of Engineers Districts on environmental engineering issues.
- Write and review standard specifications and technical manuals.
- Develop and present environmental engineering training courses.
- Review District FUDS CTC estimates.
- Assist in the development of the RACER cost estimating software.

1978-1988. Corps of Engineers, Omaha District, Design Branch, Environmental Design Section

- Project Engineer responsible for treatment plant design and designs at environmental remediation projects.

Contact Information:

Geoenvironmental and Process Engineering Branch CENWO-HX-G
HTRW Center of Expertise
U.S. Army Corps of Engineers
Omaha, NE 68144-3869
(402) 697-2580 (v)
(402) 697-2595 (fax)
lindsey.k.lien@usace.army.mil

Terry Tomasek
Qualifications for QC Review of FUDS CTC Estimates
18 January 2005

Position: HTRW Center of Expertise, Environmental Health and Safety Branch, Industrial Hygienist

Education and Training:

- Bachelor of Science, Chemistry, University of Nebraska-Omaha, 1974
- Certified as Trained in RACER
- Certified as Trained in RACER Train the Trainer

Professional Experience:

1988-Present. HTRW-CX Environmental Health and Safety Branch

- Assist in the Review of FUDS CTC QC estimates.
- Provide technical assistance to Corps of Engineers Districts on Health and Safety issues.
- Technical expert on asbestos for the Corps of Engineers.

1985-1988. Veterans Administration

- Head of the Fire, Safety and Health Program at the V.A. Hospital in Omaha, NE.

1974-1985. Department of Labor

- Industrial Hygienist with the US Department of Labor - OSHA.

Contact Information:

Mailing Address:
USACE - HTRW Center of Expertise Attn: Terry Tomasek HX-H
12565 West Center Road
Omaha, NE 68144

Telephone: (402) 697-2590

E-mail: Terry.W.Tomasek.@usace.army.mil

Jason B. Adams
Qualifications for QC Review of FUDS CTC Estimates
18 January 2005

Position: Cost Engineering Team Leader for Military Munitions Center of Expertise, Cost Engineering Branch, USACE Engineering and Support Center, Huntsville

Certifications:

- Professional Engineer, State of Alabama

Education and Training:

- Bachelor of Science in Engineering, Industrial and Systems Option, University of Alabama in Huntsville, 1999
- Certified as Trained in Military Munitions Response Program
- Certified as Trained in Environmental Laws and Regulations
- Certified as Trained in FUDS Program Policy (ER 200-3-1)
- Certified as Trained in RACER Train the Trainer
- Certified as Trained in MCACES MII (Second Generation)
- FUDS CTC Training

Professional Experience:

Jan 2004-Present. Cost Engineering Team Leader for Military Munitions Center of Expertise, Cost Engineering Branch, USACE Engineering and Support Center, Huntsville

- Responsible for assisting with the development of MM cost engineering policy / guidance.
- Member of the RACER Technical Users Group and Steering Committee.
- Reviewed FUDS MMRP/CWM Estimates.
- Prepared FUDS MMRP Detailed Estimates.
- Assist Districts in the Development of FUDS MMRP CTC estimates.
- Provided training to District employees on the FUDS CTC cost estimate preparation.
- Provided RACER training to District employees.
- Assisted in the Development and Further Advancement of MMRP RACER Technologies

Jan 2000 – Jan 2004 Cost Engineer, Cost Engineering Branch, USACE Engineering and Support Center, Huntsville

- Majority of responsibilities are the same as present responsibilities.

Contact Information:

Mailing Address:
U.S. Army Corp of Engineers
4820 University Square
Attn: Jason B. Adams (CEHNC-ED-ES-C)
Huntsville, AL 35816-1822
(256) 895-1556 (Voice)
Jason.B.Adams@usace.army.mil

Appendix H
USACE Center of Expertise Quality Assurance (QA) Plan for FUDS Cost-to-Complete Estimates, FY2005

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USACE Center of Expertise Quality Assurance (QA) Plan

for the

Formerly Used Defense Sites (FUDS) Cost-To-Complete (CTC) Estimates FY2005

U.S. Army Corps of Engineers

HTRW Center of Expertise

30 March 2005

1 Introduction

USACE geographic Military Divisions are responsible to perform a Quality Assurance (QA) Review of the Cost-to-Complete (CTC) estimate development process for their assigned Districts. Within the Division, the Division Formerly Used Defense Sites (FUDS) Program Managers (PgM) will lead this effort, often assisted by the USACE Centers of Expertise. In addition, ER 200-3-1 requires the USACE Hazardous, Toxic, and Radioactive Waste (HTRW) and Military Munitions (MM) Centers of Expertise (CXs) perform a Quality Assurance Review.

This document describes the QA procedures that will be followed by the CXs during the annual CTC estimate QA Review process for FUDS, and if called upon to assist the Divisions.

2 Purpose

The QA Review will concentrate on the process, rather than individual estimates. A statistically representative percentage of the project estimates will be reviewed to ensure the process to develop the estimates meets estimating and accounting standards and USACE guidance. The standards and guidance are outlined in the *"**FUDS Cost to Complete Estimate Handbook**"*, January 2005. The QA Review will identify actual or potential weaknesses that are to be addressed before the start of the CTC estimate development in the following year.

To review the process, the following steps will be taken on a representative number of projects for each District:

- Obtain and assess the District's Quality Control Plan used for estimate preparation, review, and reporting.
- Obtain estimate and project information from the USACE Project Information Retrieval System (PIRS) and FUDS Management Information System (FUDSMIS).
- Complete the Quality Assurance Checklist (see Section 8).

3 QA Project Delivery Team

3.1 QA Team Leader

Ms. Kate Peterson (CENWO-HX-T, 402-697-2610) is the CX Team Leader for this effort. The Team Leader establishes quality criteria that must be met by the QA Review Team.

3.2 QA Reviewers

The following individuals will perform QA Reviews for the CTC effort:

- Katherine Peterson, CENWO-HX-T, (402) 697-2610
- Steve Butler, CENWO-HX-T, (402) 697-2656
- Rick Osborn, CENWO-HX-T, (402) 697-2426
- Terry Tomasek, CENWO-HX-H, (402) 697-2590
- Lindsey Lien, CENWO-HX-G, (402) 697-2580
- Jason Adams, CEHNC-ED-ES-C, (256) 895-1556

4 Project Assignment

The QA Team Leader will assign QA review responsibilities. Since the HTRW and MM Centers of Expertise performed a Quality Control (QC) Review for estimates developed by those offices either in-house or under contract, caution will be exercised to prevent the QA Review from being conducted by the same person who performed the QC Review of certain estimates.

5 Estimate Data Retrieval

Estimates will not be sent from the Districts directly to the CX. Districts will place all completed estimates onto the PIRS FTP site (ftp://mvrpirs.mvr.usace.army.mil/ftpsite/). PIRS administrators will retrieve these data files and place them on the PIRS web site (https://mvrpirs.mvr.usace.army.mil/fuds.cfm). The QA reviewer will retrieve the estimates for review from either the PIRS FTP site or the PIRS web site.

6 Project Selection Process

A statistically representative sample of project estimates will be selected for QA Review for each District. The following set of rules will be used to select projects for review:

- At least 10 Approved[1] projects or 10% of the approved projects from each district, whichever is larger, will be randomly selected. If a district has 10 or fewer projects, all project estimates will be reviewed.

1 _____

[1] "Approved" refers to the FUDSMIS data element that indicates the Division has approved the FUDS Project.

- A list of all projects requiring an estimate obtained from FUDSMIS on 7 March 2005[2]. This list will be sorted by District, FUDS Property, and FUDS Project, in that order. To select 10% of the estimates, every tenth project on this list will be chosen for the QA Review. If this process does not yield a minimum of 10 project estimates for a particular USACE District, the interval will be reduced to every ninth, eighth, etc. in order to identify 10 estimates. If a District has 10 or fewer projects requiring an estimate, all project estimates will be reviewed for that District.

7 District QC Plan

Each District is asked to submit to the HTRW CX by 7 March 2005 a copy of their approved District CTC Quality Control Plan that was used to develop and review their CTC estimates. Each District's QC plan will be reviewed to ensure it meets the following requirements:

- The estimate development process is being performed in accordance with ER 200-3-1, FUDS Program Policy, the FUDS Information Improvement Plan (FIIP), the *"**FUDS CTC Estimate Handbook**"* dated January 2005, and other relevant HQUSACE guidance.
- The Project Delivery Team (PDT) members are identified and their qualifications are provided.
- Adequate estimate preparation, QC Review, and Supervisory Review procedures are outlined.
- A procedure is outlined for entering CTC data into FUDSMIS, storing CTC data in the District files, and forwarding the CTC data to PIRS.

8 QA Review.

The QA review will include a desk review where the estimate, COT Report, and QC/Supervisory Review Checklist is downloaded from the PIRS website and is reviewed in conjunction with FUDSMIS data. The second phase of the QA Review will include a visit to Districts selected by the Division FUDS Program Manager to determine if the permanent Project File contains information supporting the estimate.

The desk QA Review will be performed using the attached *"**FUDS Cost-to-Complete Quality Assurance Review Checklist**"*. The goal of the QA review is to test and determine if the estimates meet accounting standards that require traceability and replicability of the costs

1 _____

[2] 7 March 2005 corresponds to the date in the FUDS Cost-to-Complete Estimate Handbook, January 2005, when the Districts must have completed the estimate preparation for all projects, including conducting the District Quality Control and Supervisory Reviews, entering the phase cost information into FUDSMIS, and uploading the estimates to PIRS.

included in the FUDS Environmental Liability Report (ELR). The QA checklist questions will be answered for each project estimate reviewed to determine the sufficiency of the estimate development and quality control processes for each district.

The rationale and explanation of each question is presented below.

FUDS Cost-to-Complete Quality Assurance Review Checklist		
#	Question	Rationale to answer the question
1.	Is the electronic version of the estimate available in PIRS? [For RACER estimate, this includes the RACER.mdb file and the Cost Over Time report.]	To determine that the estimates support the FUDS ELR Costs, are archived, and are readily available.
2.	Are the Estimator, Quality Control Reviewer, and Supervisory Reviewer identified, and are they qualified to prepare the CTC estimate?	To determine that qualified personnel are developing and reviewing the estimates that will consequently encourage the reasonableness of the estimates. Qualified personnel include persons trained in FUDS ER, FUDS CTC, RACER and/or other environmental courses.
3.	Did the project estimate use appropriate methodology?	To determine if parametric estimating software passing the DoD VV&A process was used to develop the estimate, when required, i.e. when a decision document is not completed. Once a decision document is completed, use of VV&A accredited parametric estimating software is optional and detailed estimating tools can be used, e.g. MCACES.
4.	Does the estimate include background information?	Background information requires documentation of the estimator's name, date of the estimate, information on the FUDS property and project, and resources used in the development of the estimate.
5.	Does the estimate include all relevant phases and costs to complete the project?	To insure that the project estimate includes all FUDS ELR costs associated with completion of the project.
6.	Does the estimate include an explanation of changes from prior years estimate?	To insure that the project estimate is updated with appropriate and relevant information and that changes are documented.
7.	Does the estimate include relevant documentation to identify data sources, rationale used for assumptions and costs?	To insure that documentation is included in the estimate that supports the rationale for technologies, quantities and costs. This may include documentation on technical experts, historical data, assumptions, reference documents, etc.
8.	Is the estimate prepared in current year dollars?	To insure that project estimates included in the FUDS ELR are updated and reported in current year dollars.

FUDS Cost-to-Complete Quality Assurance Review Checklist		
#	Question	Rationale to answer the question
9.	Is the estimate total consistent with FUDSMIS?	To insure that the costs reported for the FUDS ELR from FUDSMIS are supported by the project estimates.
10.	If there is no CTC estimate for the project, is rationale provided in FUDSMIS and PIRS?	In some cases, no estimate may be appropriate for BD/DR projects not NDAI'ed and other projects without Regulatory Concurrence. In this case, FUDSMIS and PIRS must contain documentation providing the rationale for this decision.

The District QA Review will verify the District's files contain, for selected projects, the CTC estimates and the reference documents used to develop the estimates, are readily available, and meet the quality standards established in the District's Quality Control Plan and this Quality Assurance Plan. The attached *"**FUDS District Visit CTC QA Checklist**"* will be used to record the results of this visit. The rationale and explanation of each question is presented below.

FUDS District Visit CTC QA Checklist		
#	Question	Rationale to answer the question
1.	Was the permanent Project File available for review?	The project file must be available for review by the QA team during the visit.
2.	Was the Inventory Project Report (INPR) containing information on the FUDS property and this project in the permanent Project File?	The INPR must be complete and available for review in the project file. The INPR must be consistent with the estimate, to include Property Number, Project Number, Project Category, and FDE.
3.	Was the completed and signed Quality Control/Supervisory Review Checklist in the permanent Project File?	The checklists must be completed with all questions answered and signed by the appropriate person. For the Supervisory Review, this should be the District FUDS Program Manager.
4.	Was the estimate Cost-Over-Time Report that is consistent with the information in FUDSMIS in the permanent Project File?	This report must be available for review. The phase totals must be consistent with the estimate.
5.	Does the permanent Project File contain either the CTC estimate or indicate where the estimate can be found?	The estimate may be on media in the project file or elsewhere. If not in the file, the file must contain information where the estimate is located.
6.	If the estimate is not in the permanent Project File, was it in the location indicated by the file? (refer to question 5)	If not in the project file, the estimate must be located where indicated in the project file.
7.	Does the permanent Project File contain the property and project documents referenced in the estimate?	Property and project documents used to explain the estimate at the Property, Project, and Phase levels must be available in the project file.

FUDS District Visit CTC QA Checklist		
#	Question	Rationale to answer the question
8.	If there is no CTC Estimate for the project, is rationale provided in the permanent Project File?	In some cases, no estimate may be appropriate for BD/DR projects not NDAI'ed and other projects without Regulatory Concurrence. In this case, the file must contain documentation providing the rationale for this decision.

9 QA Summary Report.

The CX will provide a narrative analysis to the geographic Military Divisions addressing for their Districts the QA review points indicated above and the original of the completed *"**FUDS Cost-to-Complete Quality Assurance Review Checklist**"* to be maintained in the Division file. Divisions may use this analysis in their Quality Assurance After Action Report. The CX will also provide an assessment to HQUSACE on the overall CTC estimating process at a national level, with an information copy to the Divisions.

FUDS Cost-to-Complete Quality Assurance Review Checklist

FUDS Property Name: _____

FUDS Project Name: _____ **Project Category:** _____

FUDS Project Number: _____ **FFID:** _____ **PM FOA:** _____

Estimating Software: RACER ☐ MCACES ☐ Other ☐ Who Prepared Estimate: _____

Quality Assurance Review Checklist:			
#	**Question:**	**Yes**	**No**
1.	**Is the electronic version of the estimate available in PIRS? [For RACER estimate, this includes the RACER.mdb file and the Cost Over Time report.]**		
2.	**Are the Estimator, Quality Control Reviewer and Supervisory Reviewer identified, and are they qualified to prepare the CTC estimate?**		
3.	**Did the project estimate use appropriate methodology?**		
4.	**Does the estimate include background information?**		
5.	**Does the estimate include all relevant phases and costs to complete the project?**		
6.	**Does the estimate include an explanation of changes from prior years estimate?**		
7.	**Does the estimate include relevant documentation to identify data sources, rationale used for assumptions and costs?**		
8.	**Is the estimate prepared in current year dollars?**		
9.	**Is the estimate total consistent with FUDSMIS?**		
10.	**If there is no CTC estimate for the project, is rationale provided in FUDSMIS and PIRS?**		

Phase	**FUDSMIS CTC $**	**Phase**	**FUDSMIS CTC $**	**Phase**	**FUDSMIS CTC $**
PN		**RA-C**		**EE/FA**	
SI		**RA-O**		**RmD**	
RI/FS		**LTM**		**RmA-C**	
RD		**IRA**		**PCO**	

Comments: _____

_____

Reference Documents Cited in Estimate: _____

_____

Quality Assurance Reviewer: _____ Date: _____

FUDS District Visit CTC QA Checklist

FUDS Property Name: _____

FUDS Project Name: _____ **Project Category:** _____

FUDS Project Number: _____ **FFID:** _____ **PM FOA:** _____

Estimating Software: RACER ☐ MCACES ☐ Other ☐ Who Prepared Estimate: _____

FUDS District Visit CTC QA Checklist:			
#	**Question relating to the project indicated above:**	**Yes**	**No**
1.	**Was the permanent Project File available for review?**		
2.	**Was the Inventory Project Report (INPR) containing information on the FUDS property and this project in the permanent Project File?**		
3.	**Was the completed and signed Quality Control/Supervisory Review Checklist in the permanent Project File?**		
4.	**Was the estimate Cost-Over-Time Report that is consistent with the information in FUDSMIS in the permanent Project File?**		
5.	**Does the permanent Project File contain either the CTC estimate or indicate where the estimate can be found?**		
6.	**If the estimate is not in the permanent Project File, was it in the location indicated by the file? (refer to question 5)**		
7.	**Does the permanent Project File contain the property and project documents referenced in the estimate?**		
8.	**If there is no CTC Estimate for the project, is rationale provided in the permanent Project File?**		

QA Review Comments: _____

_____

_____

_____

_____

_____

_____

_____

Quality Assurance Reviewer: _____ Date: _____

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Appendix I
Environmental Liabilities Required To Be Reported on Annual Financial Statements (Report Number D-2004-080), Inspector General, Department of Defense, 5 May 2004.

The following is the first twelve pages of the DoDIG report that identified deficiencies in the management of the Army's cost-to-complete process.

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May 5, 2004

Financial Management

Environmental Liabilities Required To Be Reported on Annual Financial Statements
(D-2004-080)

Department of Defense
Office of the Inspector General

Constitution of the United States

A Regular Statement of Account of the Receipts and Expenditures of all public Money shall be published from time to time.

Article I, Section 9

Additional Copies

To obtain additional copies of this report, visit the Web site of the Inspector General of the Department of Defense at www.dodig.mil/audit/reports or contact the Secondary Reports Distribution Unit of the Audit Followup and Technical Support Directorate at (703) 604-8937 (DSN 664-8937) or fax (703) 604-8932.

Suggestions for Future Audits

To suggest ideas for or to request future audits, contact the Audit Followup and Technical Support Directorate at (703) 604-8940 (DSN 664-8940) or fax (703) 604-8932. Ideas and requests can also be mailed to:

OAIG-AUD (ATTN: AFTS Audit Suggestions)
Inspector General of the Department of Defense
400 Army Navy Drive (Room 801)
Arlington, VA 22202-4704

Defense Hotline

To report fraud, waste, or abuse, contact the Defense Hotline by calling (800) 424-9098; by sending an electronic message to Hotline@dodig.osd.mil; or by writing to the Defense Hotline, The Pentagon, Washington, DC 20301-1900. The identity of each writer and caller is fully protected.

AEC	Army Environmental Center
BRAC	Base Realignment and Closure
CTCNORM	Cost-to-Complete Normalization of Data System
DERP	Defense Environmental Restoration Program
DSERTS	Defense Site Environmental Restoration Tracking System
EPR	Environmental Program Requirements
FMR	Financial Management Regulation
FUDS	Formally Used Defense Sites
FUDSMIS	Formally Used Defense Sites Management Information System
HTRW	Hazardous Toxic Radioactive Waste
NAVFAC	Naval Facilities Engineering Command
NAVSEA	Naval Sea Systems Command
OEW	Ordnance and Explosive Waste
RACER	Remedial Action Cost Engineering Requirements
RCTCS	Restoration Cost-to-Complete System
VV&A	Verification, Validation, and Accreditation

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-4704

May 5, 2004

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE (COMPTROLLER)/CHIEF FINANCIAL OFFICER
ASSISTANT SECRETARY OF THE AIR FORCE (FINANCIAL MANAGEMENT AND COMPTROLLER)
DIRECTOR, DEFENSE FINANCE AND ACCOUNTING SERVICE
NAVAL INSPECTOR GENERAL
AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Report on Environmental Liabilities Required To Be Reported on Annual Financial Statements (Report No. D-2004-080)

We are providing this report for review and comment. We received comments on a draft of this report from the Under Secretary of Defense (Comptroller)/Chief Financial Officer, the Deputy Under Secretary of Defense (Installations and Environment) and the Military Departments. We considered the management comments when preparing the final report.

DoD Directive 7650.3 requires that all recommendations be resolved promptly. The Army comments were partially responsive. We request additional Army comments on Recommendation A.2.a. As a result of management comments, we added Recommendation A.3. directed to the Secretary of the Army. Therefore, we request that the Army provide comments on Recommendations A.2.a. and A.3. by July 6, 2004.

If possible, please send management comments in electronic format (Adobe Acrobat file only) to Audcm@dodig.osd.mil. Copies of the management comments must contain the actual signature of the authorizing official. We cannot accept the / Signed / symbol in place of the actual signature. If you arrange to send classified comments electronically, they must be sent over the SECRET Internet Protocol Router Network (SIPRNET).

We appreciate the courtesies extended to the staff. Questions should be directed to Mr. Benjamin A. Mehlman at (703) 604-9291 (DSN 664-9291) or Ms. Rhonda L. Ragsdale at (703) 604-9347 (DSN 664-9347). The team members are listed inside the back cover. See Appendix H for the report distribution.

By direction of the Deputy Inspector General for Auditing:

David K. Steensma

David K. Steensma
Assistant Inspector General
for Contract Management

Office of the Inspector General of the Department of Defense

Report No. D-2004-080 **May 5, 2004**
(Project No. D2003CB-0037)

Environmental Liabilities Required To Be Reported on Annual Financial Statements

Executive Summary

Who Should Read This Report and Why? DoD civilians and uniformed officers responsible for environmental cost estimating and financial reporting should read this report. It discusses the management controls that are necessary to support financial reporting of environmental liabilities on financial statements.

Background. According to Public Law 101-576, "Chief Financial Officers Act of 1990," November 15, 1990, each executive agency shall prepare and submit to the Director of the Office of Management and Budget a financial statement for the preceding fiscal year. The Chief Financial Officers Act requires that financial statements prepared by an agency be audited by the Inspector General in accordance with applicable generally accepted government auditing standards and also requires the Inspector General to submit a report to the head of the audited agency. Environmental liabilities and disposal liabilities are reported on "Environmental Liabilities and Environmental Disposal Liabilities," Note 14 of the DoD-wide and individual Service-wide balance sheets. Contingent liabilities are reported as part of "Commitments and Contingencies," Note 16. As of September 30, 2002, DoD reported $59.35 billion in environmental liabilities on Note 14 and $12.7 billion of environmental related contingent liabilities on Note 16. Environmental liabilities include estimated amounts for future cleanup of contamination resulting from waste disposal methods, leaks, spills, and other past activity that have created a public health or environmental risk. DoD declared, in FYs 2002 and 2003, environmental liabilities as a systemic management control weakness as defined by the Federal Managers' Financial Integrity Act.

This report discusses the reliability of the data and processes used to report environmental liabilities including identifying and assessing the adequacy of the management controls relating to the reporting. The report focuses on selected Note 14 and Note 16 items where Military Departments made assertions on the fair presentation of the amounts reported or where the Under Secretary of Defense (Comptroller)/Chief Financial Officer requested we review an issue. We reviewed controls over $21.92 billon of Army environmental liabilities and $10.05 billion of Navy environmental liabilities as reported on Note 14 through a sampling of 735 environmental liability cost estimates at 28 Army activities and 1 Navy activity. We also reviewed $3.67 billion of Note 16 contingent liabilities attributed as Army and Defense Logistics Agency environmental liabilities. We performed a detailed internal control review of the Army environmental liability estimates and the Navy nuclear-powered ship estimates, but did not perform substantive tests of the reported values of those estimates.

Results. The reliability of the data and processes used to report Army, Navy, and Defense Logistics Agency environmental liabilities needed improvement. The data and

processes used to report $21.92 billion in environmental liabilities on Note 14 to the FY 2002 Army financial statements did not have adequate documentation and audit trails. As a result, Army Defense Environmental Restoration Program, Base Realignment and Closure (BRAC), and non-Defense Environmental Restoration Program environmental liability estimates were potentially misstated for the FY 2002 DoD-wide and Army-wide financial statements (finding A). The Army initiated action to improve controls by implementing a new feeder system to reduce the possibility of errors.

Although technically complying with existing modeling and simulation requirements, Air Force and Navy verification, validation, and accreditation reviews of environmental liability electronic cost estimating systems were performed without comparison of the estimates to actual costs (finding B). In response to the audit, the Navy and Air Force initiated action to document comparison of system-generated costs with associated actual project costs on present and future models.

Although the estimating methodology for the disposal of nuclear-powered ships appeared reasonable, the controls over a $10.05 billion Navy Note 14 environmental liability estimate for the disposal of nuclear-powered ships needed improvement (finding C). The Office of the Deputy Under Secretary of Defense (Installations and Environment) is developing additional financial reporting policy for environmental compliance, nuclear-powered ship disposal, and chemical demilitarization for issuance in FY 2004. The Naval Sea Systems Command is also developing nuclear-powered ship disposal estimate reporting and control guidance. The Defense Finance and Accounting Service corrected previously reported errors by re-categorizing a $2.6 billion Defense Logistics Agency environmental liability as a contingent claim and litigation from civil law on second quarter FY 2003 and subsequent DoD-wide financial statement Note 16. The contingent liabilities were related to the potential claims from Defense Logistics Agency fuel contracts and not to environmental liabilities (finding D).

Management Comments and Audit Response. The Deputy Under Secretary of Defense (Installations and Environment) agreed to implement guidance to improve the development, recording, and reporting of environmental liabilities. The Army Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health) agreed that the Commander, U.S. Army Corps of Engineers, should establish a quality control program to assess environmental liability processes and controls, but did not agree that the Army BRAC Office should establish procedures to verify that Army BRAC environmental liability estimates are accurate and meaningful as required by financial management regulation and not adjusted because of potential budgetary constraints. Based on comments from the Under Secretary of Defense (Comptroller)/Chief Financial Officer we added a recommendation to the Army relating to review of the Army BRAC program environmental liability estimate (see finding A for detailed discussion of these recommendations). We request comments from the Army by July 6, 2004. The Assistant Secretary of the Navy (Financial Management and Comptroller) and the Deputy Chief of Staff of the Air Force (Installations and Logistics) agreed that the Naval Facilities Engineering Command and the Air Force Civil Engineering Support Agency issue guidance requiring that future environmental liability electronic cost estimating system efforts comply with Defense Environmental Restoration Program Management Guidance (see finding B for detailed discussion of these recommendations).

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Background

Reporting Requirement. According to Public Law 101-576, "Chief Financial Officers Act of 1990," November 15, 1990, each executive agency must prepare and submit to the Director of the Office of Management and Budget a financial statement for the preceding fiscal year. The Chief Financial Officers Act of 1990 requires that financial statements prepared by an agency be audited by the Inspector General in accordance with applicable generally accepted government auditing standards and the Inspector General must submit a report to the head of the audited agency. Environmental liabilities include estimated amounts for future cleanup of contamination resulting from waste disposal methods, leaks, spills, and other past activity that have created a public health or environmental risk. This report discusses the reliability of the data and processes used to report environmental liabilities in the DoD Agency-wide financial statements. DoD identified, in performance and accountability reports for FYs 2002 and 2003, environmental liabilities as a systemic management control weakness as defined by the Federal Managers' Financial Integrity Act.

Financial Management Regulation. DoD Regulation 7000.14-R, "DoD Financial Management Regulation (FMR)," volume 4, chapter 13, prescribes accounting policy and principles for measuring and recognizing DoD liabilities associated with the disposition of property, structures, equipment, munitions, and weapons. The FMR volume 4, chapter 13, also prescribes policy for measuring and recognizing the environmental liabilities associated with corrective actions and the future closure of facilities on active installations and for the environmental response actions at operational test and training ranges on active installations. FMR volume 4, chapter 14, prescribes the accounting policy and principles for measuring and recognizing DoD liabilities associated with the containment, treatment, or removal of contamination that could pose a threat to public health and the environment. The FMR volume 4, chapter 14, also prescribes the accounting policy for accrued environmental restoration costs for general property, plant, equipment, and stewardship land. Furthermore, it provides policy for accrued environmental restoration costs for potentially responsible party sites. FMR chapters 13 and 14 also identify that cost estimates of environmental disposal or environmental restoration activities are subject to audit.

Defense Environmental Restoration Program. Defense Environmental Restoration Program (DERP) Management Guidance, September 2001, provides program implementation information for environmental restoration at active installations, facilities subject to Base Realignment and Closure (BRAC), Formerly Used Defense Sites (FUDS), and cost-to-complete estimates and financial reporting of environmental restoration liabilities. In addition to the DERP guidance, the DERP-FUDS Program Manual, September 1999, provides general policy guidance on the execution of the FUDS program. In January 2002, the Army Environmental Center (AEC) issued additional environmental estimate cost-to-complete programmatic guidance covering DERP active installations and BRAC facilities.

Army non-DERP Guidance. Federal, State, and local environmental laws and regulations are the basis for non-DERP environmental project requirements.

Estimates for non-DERP environmental projects are entered into the Environmental Program Requirements (EPR) database. Guidance for developing and entering projects into the EPR database include: "Policy and Guidance for Identifying U.S. Army Environmental Program Requirements," February 2002; U.S. Army Environmental Program Requirements Catalog 2002, "A Catalog of Sample EPR Project Submissions and Program Guidance," August 2002; and the Environmental Program Requirements Quality Assurance Handbook, November 1998.

Note 14 and Note 16 of Financial Statements. DoD reports environmental liabilities and contingent liabilities on the DoD-wide and individual Service-wide balance sheets. Balance Sheet Note 14, "Environmental Liabilities and Disposal Liabilities," details the cost estimate elements that comprise environmental liabilities. Balance Sheet Note 16, "Commitments and Contingencies," details the cost elements that comprise contingent liabilities including environmental contingent liabilities. As of September 30, 2002, DoD reported $59.35 billion for environmental liabilities and $12.7 billion for environmental contingent liabilities. Table 1 outlines the DoD Component breakdown of the environmental liabilities reported on Note 14 and the environmental contingent liabilities reported on Note 16.

Table 1. FY 2002 Environment Liabilities on the DoD-Wide Balance Sheet

	FY02 Environmental Liabilities in billions	
DoD Components	Note 14	Note 16
Army	$35.08	$10.10
Navy	15.47	0.00
Air Force	8.45	0.00
Other Defense Organizations	0.35	2.60
Total	**$59.35**	**$12.70**

We reviewed controls over $21.92 billon of the $35.08 billion of Army environmental liabilities and $10.05 billion of the $15.47 billion of Navy environmental liabilities reported on Note 14 through a sampling of 735 environmental liability cost estimates at 28 Army activities and 1 Navy activity. We also reviewed $3.67 billion of Note 16 contingent liabilities attributed as Army and Defense Logistics Agency environmental liabilities (see Appendix A).

Army and Navy Management Assertions. On January 6, 2003, and June 26, 2003, through management representation letters, the Army asserted that all of the Army environmental liabilities were reported and presented fairly on the FY 2002 financial statements. Also, on August 9, 2002, and January 6, 2003, through management representation letters, the Navy asserted that it maintained a sound methodology for estimating environmental liabilities associated with nuclear-powered ships and submarines, and that the Naval Facilities Engineering Command (NAVFAC) had completed verification, validation, and accreditation (VV&A) of the cost-to-complete system for DERP environmental liabilities.

Auditing Standards for Accounting Estimates. The Codification of Statements on Auditing Standards Section 342 (AU 342), "Auditing Accounting Estimates," provides guidance for auditing accounting estimates. Auditors must review and test management processes to assess the reasonableness of the accounting estimate. A strong internal control system will help ensure the reasonableness of an accounting estimate. AU 342 identifies the relevant aspects of an internal control system including the:

- accumulation of relevant, sufficient, and reliable data upon which to base estimates;
- preparation of the estimate by qualified personnel;
- adequate review and approval of estimates by appropriate levels of authority; and
- comparison of prior accounting estimates with subsequent results to assess the reliability of the process used to develop estimates.

Electronic Environmental Cost Estimating Software. Both FMR and DERP guidance require the use of electronic cost estimating software in most environmental liability estimating situations. DoD uses two such estimating software programs: the Remedial Action Cost Engineering Requirements (RACER) system is used by the Army and the Air Force, and the Cost-to-Complete component of the Normalization of Data System (CTCNORM) is used by the Navy.

RACER. The Air Force and Army use RACER for developing parts of out-year environmental liabilities estimates and annual budgets. Other DoD and Federal agencies also use RACER to prepare individual cost project estimates and to evaluate cost reasonableness of estimates. The Air Force Civil Engineering Support Agency developed and maintains the RACER system. Air Force Civil Engineering Support Agency planned and funded modifications, oversaw preparation of the simulation for use, and configuration management and maintenance of RACER. Air Force Civil Engineering Support Agency initiated a VV&A review of the RACER in January 2001. The process was completed in June 2001. Air Force Civil Engineering Support Agency was the verification and validation agent and the accreditation authority.

CTCNORM. NAVFAC developed and maintains the CTCNORM system. NAVFAC also initiated a VV&A review of the CTCNORM in March 2001. The process was completed in October 2001. NAVFAC was the verification and validation agent and the accreditation authority. NAVFAC reports Navy and Marine Corps environmental liability information derived from CTCNORM to the Office of the Assistant Secretary of the Navy (Financial Management and Comptroller).

Objectives

Our overall objective was to determine the reliability of the processes and data used to report environmental liabilities on financial statements. We also reviewed internal controls and compliance with laws and regulations related to the environmental liabilities. See Appendix A for a discussion of the scope and methodology and our review of the management control program. See Appendix B for prior coverage related to the objectives.

A. Army Environmental Liabilities

The data and processes used to report $21.92 billion in DERP[1], BRAC, and non-DERP environmental liabilities on the FY 2002 financial statements did not have adequate documentation and audit trails. Although estimators were properly qualified to perform estimates, the Army did not document supervisory reviews of estimates and adequate quality control programs were not in place to ensure the reliability of data. This occurred because DERP, non-DERP, and BRAC activities were not following guidance concerning environmental liability financial reporting. In addition, non-DERP activities lacked specific implementation guidance, and DERP and BRAC activities lacked effective and reliable controls over feeder systems. As a result, DERP, BRAC, and non-DERP environmental liability estimates were potentially misstated for the FY 2002 DoD-wide and Army-wide financial statements.

Reporting Organizations

Personnel at active installations, BRAC installations, and U.S. Army Corps of Engineers (Corps of Engineers) districts (for FUDS properties) developed and reviewed the cost-to-complete environmental liability estimates (estimates) relating to future cleanup of contamination resulting from waste disposal methods, leaks, spills, and other past activity that have created public health and environmental risks. AEC was responsible for collecting, reviewing, and forwarding the estimates relating to DERP active installations, BRAC, and non-DERP to the Army Assistant Chief of Staff for Installation Management. The Corps of Engineers was responsible for collecting, reviewing, and forwarding the estimates relating to FUDS to the Assistant Chief of Staff for Installation Management. The Assistant Chief of Staff for Installation Management was responsible for validating and including the estimates in reporting environmental liabilities on the financial statements. (Additional details of Army reporting organizations are discussed in Appendixes C, D, E, and F.)

Army Controls Effectiveness

The Army did not maintain adequate documentation and audit trails to support environmental liability estimates for FY 2002. In addition, the Army did not document supervisory reviews of estimates and adequate quality control programs were not in place to ensure the reliability of data.

Documentation and Audit Trails. The FMR emphasizes that audit trails for environmental liabilities must allow transactions to be traced from the point of initiation to the final report. The audit trail must adequately support all transactions with relevant documents and source records, including a narrative providing sufficient explanation for the basis of the estimate, the date prepared,

[1] DERP locations included active installations and FUDS.

and the preparer name. The FMR also requires documentation must exist at the time of audit.

Documentation and audit trails permit tracing transactions through a system. Audit trails allow auditors or evaluators to ensure transactions are properly accumulated and correctly classified, coded, and recorded in all affected accounts. Audit trails are also necessary to enable supervisors, other estimators, and auditors to understand the methodologies used to develop estimates and determine whether estimates are reasonable and complete. We considered relevant, sufficient, and reliable environmental liability documentation to be pertinent project-related documents that supported underlining factors, assumptions, and estimated costs, including background information, disposal or restoration strategy, physical units in the estimate, cost per unit, cost adjustments such as conversion to current year dollars, and significant project changes.

Army Environmental Liability Documentation. The Army did not have adequate audit trails to ensure that documentation was readily available to support the underlying assumptions of estimates. Therefore, the Army did not meet the definition of an audit trail as defined in the DoD FMR. The majority of the Army documentation maintained at the installation level was not sufficient to support estimates throughout the reporting process. Table 2 shows that 634 of the 719 Army estimates reviewed did not have adequate documentation to lead auditors through the entire audit trail.

Table 2. Adequacy of Environmental Liability Estimates Documentation and Audit Trails

	DERP	non-DERP	FUDS	BRAC	Totals
Estimates Reviewed	231	45	300	143	719
Estimates without Adequate Audit Trails and Documentation	184	43	299	108	634

For DERP active installations, 47 of 231 estimates reviewed had an adequate audit trail that would allow the auditor to trace from the point of initiation to the final report (see Audit Trails and Documentation in Appendix C). DERP-FUDS activities provided adequate documentation for 1 of 300 estimates and non-DERP activities provided documentation for 2 of the 45 estimates reviewed. BRAC installations maintained adequate documentation for 35 of the 143 estimates.

For example, Headquarters, Corps of Engineers personnel were unable to provide supporting documentation for $1.1 billion in management and support costs included in the FUDS related environmental liability reported on the financial statements (see Audit Trails and Documentation in Appendix D). In another example, Rocky Mountain Arsenal reported 72 estimates valued at $745 million, the largest single DERP active installation location. Rocky Mountain used 31 program management estimates derived from a 1995 feasibility study to create

the 72 reported estimates. The Arsenal did not maintain records to support transfer and apportionment of data from the 31 program management estimates to the 72 reported estimates. As a result, we could not confirm assumptions, cost elements, and adjustments that comprised the estimates. Rocky Mountain Arsenal and AEC personnel stated that they were taking steps to revise FY 2003 reporting of the 31 program management based estimates to AEC in place of the 72 RCTCS/DSERTS estimates to allow for an audit trail for the estimates.

Supervisory Reviews. DERP active installation, FUDS, and BRAC activities did not routinely document supervisory reviews of environmental liability estimates when reporting environmental liabilities for the FY 2002 financial statements. The FMR requires organizations that prepare cost estimates to retain adequate documentation of management reviews. Table 3 shows that of 719 estimates reviewed at Army activities, only 74 estimates had adequate documentation of supervisory reviews of environmental liability estimates.

Table 3. Adequacy of Environmental Liability Estimate Supervisory Reviews

	DERP	non-DERP	FUDS	BRAC	Totals
Estimates Reviewed	231	45	300	143	719
Estimates with Documented Supervisory Reviews	0	43	0	31	74

DERP Active Installations Supervisory Reviews. For DERP active installations none of 231 estimates reviewed showed evidence that management performed and documented adequate supervisory reviews of the estimates. Evidence existed that supervisors reviewed some estimates; however, there was no documentation that showed specifically what the supervisor reviewed. Adequate supervisory reviews would include verifying estimator-prepared estimates in accordance with financial reporting requirements and the DERP guidance. DERP guidance section 15.8.2 states that management must retain documentation of management review. DERP active installation supervisors stated that reviews mostly focused on reasonableness of estimates and not whether adequate supporting documentation or an audit trails existed. For example, the installation action plan for Aberdeen Proving Grounds showed a supervisory approval of 252 cost to complete estimates by installation management and headquarters level management. Installation level management stated that supervisory review did not include verification of critical items such as documentation and audit trail.

DERP-FUDS Supervisory Reviews. The Corps of Engineer districts and the U.S. Army Corps of Engineers Omaha Center of Expertise (Omaha Center) performed limited supervisory reviews of estimates. The districts reviewed estimates to ensure that cost allocation met proposed fiscal year funding. The Omaha Center verified that Formerly Used Defense Sites Management Information System (FUDSMIS) data were correctly entered and that estimators

included all project phases. However, FUDS guidance requires the development and use of a uniform checklist for supervisory reviews to ensure that estimators include all appropriate phases in the estimate. Neither the districts nor the Omaha Center documented supervisory reviews through the use of a uniform checklist in accordance with FUDS guidance.

BRAC Supervisory Reviews. Four of six BRAC installations did not provide evidence of supervisory reviews of estimates. According to personnel at the installations, the submittal of the estimates to higher-level management was considered as a form of supervisory review.

Army Quality Control Programs. The Army did not implement adequate quality control programs to ensure the reliability and accuracy of environmental liability estimates. An effective quality control program should include procedures for continual monitoring whether the policies and procedures related to the standards are suitably designed and are effectively applied. Effective quality control programs are necessary to aid personnel in identifying errors in estimates prior to reporting. For example, maintaining supporting documentation can help ensure that estimators have included costs for all phases of projects or have used the most recent historical data when developing estimates. In addition, by implementing supervisory reviews (another element of an effective quality control program), supervisors may be able to identify errors prior to approving and reporting estimates. The critical elements of a quality control program include documentation and audit trails, supervisory reviews, and quality assurance reviews. Army activities did not implement sufficient internal quality control programs to ensure they reported complete and correct data.

DERP Active Installations and BRAC Quality Assurance. Quality assurance reviews conducted by AEC on DERP active installations and BRAC estimates were not sufficient to ensure that the accounting standards outlined in the FMR were met. AEC performed quality assurance reviews on FY 2001 estimates at 41 DERP active installations and BRAC installations. AEC reviews showed that of the 41 installations, 16 did not use RACER software, 37 did not have adequate documentation, 19 did not reflect the environmental restoration strategy, 8 lacked environmental liability estimation training, and 7 lacked evidence of supervisory reviews. Although the AEC quality assurance review identified the above deficiencies, AEC did not finalize the results of the review until late fall 2002. As a result, there was little or no effect for the FY 2002 financial statements on the adequacy of supporting documentation, audit trails and documentation of supervisory reviews.

Inconsistencies also existed between the deficiencies in the AEC quality assurance reviews of DERP active installations and BRAC locations and our review regarding adequacy of documentation and audit trails. For example, AEC began a quality assurance review of Rocky Mountain Arsenal but omitted reporting review deficiencies because Arsenal documentation did not provide an audit trail. AEC did not maintain either documentation of the Rocky Mountain Arsenal quality assurance review or documentation of the reason AEC omitted reporting the results to the office of the Assistant Chief of Staff for Installation Management.

AEC assessments of BRAC installation estimates were inadequate to ensure the accuracy of the environmental liabilities. For example, we determined that two Fort Ord BRAC cleanup estimates did not have adequate documentation despite the AEC review conclusion that the estimates maintained adequate documentation. The Army Assistant Chief of Staff for Installation Management BRAC Division (BRAC Office) did not perform quality assurance reviews of the installations and no formal action was taken concerning AEC findings.

Non-DERP Quality Assurance. AEC non-DERP quality assurance reviews were generally restricted to the information within the database and were focused on ensuring that the projects had correct requirements, quality and accurate data, and justified funding purposes. The AEC non-DERP quality assurance reviews did not include reviews of source documentation or evaluate the estimate methodology or audit trail, which are elements required by the DoD FMR. Therefore, the reviews could not verify the existence, completeness, or valuation of the estimates.

DERP-FUDS Quality Assurance. DERP-FUDS activities did not implement quality control programs at the district or division level. Instead, the districts and divisions relied on the Omaha Center to perform quality control reviews. The Omaha Center reviews were limited in scope and were completed periodically when funding was available. Corps of Engineers districts and divisions did not always implement recommendations resulting from the Omaha Center reviews.

Estimator Qualifications. We reviewed estimator qualifications at each of the DERP active installations, FUDS, BRAC, and non-DERP locations audited. We found estimators properly qualified to perform environmental cost estimating at all 27 locations reviewed.

Compliance with Environmental Liabilities Guidance

DERP, BRAC, and non-DERP activities did not follow FMR guidance and DERP program guidance concerning environmental liability financial reporting. In addition, non-DERP activities lacked specific implementation guidance.

Financial Reporting Guidance. DERP and BRAC activities did not follow financial reporting guidance when reporting environmental liabilities. The DERP guidance requires complete disclosure of all environmental restoration liabilities to include having complete, formal, and auditable documentation of all data and other information used to develop the estimate of the environmental restoration liability. However, DERP and some BRAC activities did not follow this guidance, and the installations could not produce adequate audit trails. For example, one DERP active installation could not provide documentation to support any of the 15 estimates, valued at $134 million, selected for our review. One DERP-FUDS activity could not provide adequate documentation to support any of the 70 estimates, valued at over $604 million, selected for review. One BRAC site could not provide documentation to support 66 estimates, valued at approximately $66.2 million, representing approximately 6 percent of total Army BRAC environmental liabilities.

DERP Guidance. Even though DERP active installation and FUDS guidance requires that all estimates prepared include all anticipated costs on a current cost basis, FUDS activities did not update and report all environmental liability costs in current year dollars. Of 300 FUDS estimates reviewed, 36 estimates, valued at approximately $963 million, were not updated and reported in current year dollars. In addition, of 231 DERP active installation estimates reviewed, 45 estimates, valued at approximately $836 million, were not updated and reported in current year dollars. Because these projects were not updated, the reported amount was not in accordance with financial reporting guidance and the liability could be misstated.

BRAC Guidance. The BRAC Office reduced FY 2002 environmental liability estimates by approximately $382 million based on funding constraints. DoD FMR 7000.14-R, volume 4, chapter 14, states that availability of funds should not determine the liability. However, the BRAC Office applied predetermined criteria that included a self-generated $1 billion ceiling constraint, which limited the total environmental liability recognized. Based on the constraints, BRAC Office officials either encouraged installations to revise estimates using a more optimistic approach or arbitrarily changed site estimates. A written explanation of BRAC Office reductions to estimates was not provided to BRAC installations. The use of budgetary constraints by the BRAC Office for reporting FY 2002 environmental liabilities did not adhere to the DoD FMR (see BRAC Issues in Appendix E).

Non-DERP Guidance. The Army did not establish guidance for developing estimates for non-DERP environmental liabilities. However, AEC did release an Environmental Program Requirements Project Catalog that contained sample projects to use when developing EPR estimates. In addition, one non-DERP activity did not follow financial reporting guidance and may have incorrectly reported $15.16 million in environmental liabilities on the FY 2002 Note 14. Based on the FMR and other accounting guidance, the Army should have classified the environmental liabilities as contingent liabilities and should have been reported on Note 16 (see Financial Reporting Guidance in Appendix F).

Controls Over Feeder Systems

DERP and BRAC activities lacked effective and reliable controls over feeder systems. The non-DERP feeder system, Environmental Program Requirements (EPR) database, could not be reviewed because of inadequate documentation and lack of functionality to produce an audit trail. Internal controls for the Restoration Cost-to-Complete System/Defense Site Environmental Restoration Tracking System (RCTCS/DSERTS) feeder system for DERP active installations and BRAC activities and the FUDMIS feeder system for FUDS did not ensure that the systems effectively reflected the environmental FY 2002 liability estimates prepared at the installation level. DERP guidance requires the estimates and the values in the annual financial statements for environmental restoration to be consistent at the component and department levels. Only 339 of the 674 DERP active installation, FUDS, and BRAC feeder system estimates reviewed

accurately reflected environmental FY 2002 liability estimates prepared at the installation level. Table 4 provides a breakdown of estimates accurately reflected in the RCTCS/DSERTS and FUDSMIS feeder systems for DERP active installation, FUDS, and BRAC estimates.

Table 4. Adequacy of Environmental Liability Feeder Systems

	DERP	FUDS	BRAC	Totals
Estimates Reviewed	231	300*	143	674
Estimates Accurately Reflected in Feeder Databases	68	197	74	339

* The actual number of estimates that were updated with 2002 cost factors was 222. Therefore, the 186 estimates that were correctly reflected between the databases were from the sample of 222. The remaining 78 estimates were not updated to 2002 cost factors or did not have documentation to make a determination. Refer to Appendix D for additional discussion.

For example, only 8 of the 36 estimates reviewed at Redstone Arsenal were consistent with estimates in the reporting database. At Dugway Proving Ground, the supporting database did not agree with 42 of 44 estimates reviewed, in part because of a lack of communication between the location and AEC personnel. This resulted in AEC inserting prior year estimates into the database rather than revised estimates. At Fort McClellan, estimates submitted for reporting purposes and estimates to the reported database were inconsistent by approximately $54.28 million. These inconsistencies occurred because AEC personnel and BRAC Office made changes to the estimates without documenting them or adjusting the original estimates, causing the reporting database to reflect inaccurate data.

The Corps of Engineers did not have adequate internal controls in place to ensure that their personnel input accurate data into FUDSMIS. For 300 FUDSMIS database entries valued at approximately $5.9 billion, Corps of Engineers districts could provide documentation to support approximately $4.2 billion. Corps of Engineers district personnel could not explain why the estimates did not match the database and what represented the $1.7 billion difference. Because of the lack of consistency between the supporting database and changes by upper management, an audit trail that would allow an auditor to review the supporting documentation did not exist.

Management Actions

The DERP and non-DERP programs have undertaken some management actions for the deficiencies identified. For the DERP program, AEC developed and released the Army Environmental Database Restoration feeder system for use in

the Army FY 2003 DERP active installation and BRAC data call to integrate the Defense Site Environmental Restoration Tracking System (DSERTS) and the Restoration Cost-to-Complete System (RCTCS) databases. The Army Environmental Database Restoration feeder system is capable of importing RACER estimates as well as entering and revising cost-to-complete estimates and is a more automated process that will reduce the possibility of errors. In addition, the Environmental Database Restoration feeder system will allow estimators to revise estimates without creating a discrepancy between the RACER estimate and the feeder systems. AEC is also developing the Army Environmental Database-Cleanup Compliance feeder system for non-DERP estimates for use in FY 2005. The Army Environmental Database-Cleanup Compliance will have the same capabilities as the Army Environmental Database Restoration feeder system.

The Corps of Engineers is in the process of creating a FUDS Information Improvement Plan. The goals of the plan are to direct that:

- all FUDS properties/projects are documented and maintained in accordance with DoD and Corps of Engineers policy and regulations;
- FUDS estimates are properly developed and reviewed for quality, technical adequacy, reasonableness, are properly documented; and
- estimate entries are consistent with FUDSMIS.

Implementation of the plan was scheduled for April 2004.

The non-DERP program has also initiated corrective action. The Office of the Deputy Under Secretary of Defense (Installations and Environment) is developing a non-DERP financial reporting policy that discusses definitions for environmental liabilities, identification and differences between environmental liabilities, accounting treatments, estimate methodology, and criteria for determining the type of liability to be reported. The policy also covers environmental liabilities for the Army Chemical-Demilitarization program and disposal of Navy nuclear-powered ships. The Deputy Under Secretary (Installations and Environment) will issue the policy during FY 2004. The Army also plans to develop non-DERP specific program guidance.

The Army is also developing environmental liability control improvements to be implemented in the Army Chief Financial Officer Strategic Plan the Army Environmental Cleanup Strategic Plan and individual program management strategic plans for DERP active installations, DERP-FUDS, BRAC and non-DERP programs. The expected completion date for the strategic plan implementation is September 2005.

Management Comments on Finding A and Audit Response

Summaries of management comments on finding A and our audit response are in Appendix G.

Appendix J
DAIM-ZA Memorandum, 18 November 2004, Subject: Improving the Reporting of Financial Liabilities.

The following Department of Army memorandum established specific review and quality assurance/quality control responsibilities for each cleanup program. It further required immediate implementation to ensure CTC efforts during FY2005 provided for sound and audible estimates.

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DEPARTMENT OF THE ARMY
ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
600 ARMY PENTAGON
WASHINGTON, DC 20310-0600

DAIM-ZA

NOV 1 8 2004

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Improving the Reporting of Environmental Liabilities

1. References:

a. Memorandum, Department of the Army, Office of the Assistant Chief of Staff for Installation Management, 30 Jul 04, SAB.

b. Environmental Liabilities Required To Be Reported on Annual Financial Statements (Report No. D-2004-080), Inspector General, Department of Defense, dated 5 May 04.

2. Reference 1a transmitted the Correction Action Plans developed to address deficiencies in the reporting of environmental liabilities documented by the DOD Inspector General (ref 1b). Deficiencies noted in the DODIG report included the need to conduct and document supervisory review of cost-to-complete estimates and the need for consistent quality control (QC) and quality assurance (QA) procedures to ensure our estimates are complete and auditable.

3. The enclosed matrix (Responsibilities for Cost-to-Complete and Financial Liabilities) establishes specific review and QA/QC responsibilities, for each of the cleanup programs, to be implemented by your organizations in future cost-to-complete development efforts. Where the specific office listed in the table does not match the existing installation or command structure of your organization, an equivalent office should be used to conduct the assigned function.

4. We must implement these review procedures immediately to ensure cost-to-complete development efforts during fiscal year 2005 provide sound and auditable estimates of our environmental liabilities.

5. The point of contract is Mr. James Daniel, DAIM-EDC, (703) 601-1590, e-mail James.Daniel@hqda.army.mil.

Encl

for LARRY J. LUST
Major General, GS
Assistant Chief of Staff
for Installation Management

DAIM-ZA
SUBJECT: Improving the Reporting of Environmental Liabilities

DISTRIBUTION:
DIRECTOR, US ARMY INSTALLATION MANAGEMENT AGENCY, ATTN: MS. POTTER, 2511 JEFFERSON DAVIS HIGHWAY (TAYLOR BUILDING), ARLINGTON, VA 22202

CHIEF, NATIONAL GUARD BUREAU, ATTN: NGB-ARE (LT COL WALTER), ARLINGTON HALL, 111 SOUTH GEORGE MASON DRIVE, ARLINGTON, VA 22204-1382

OFFICE OF THE ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT, BASE REALIGNMENT AND CLOSURE DIVISION, ATTN: DAIM-BO (MR. HOOD), NC1/PRESIDENTIAL TOWERS, ROOM 9652, 2511 JEFFERSON DAVIS HIGHWAY, ARLINGTON, VA 22202

COMMANDER,
HQ, US ARMY MATERIEL COMMAND, ATTN: AMCPE-I (MR. DRUMHELLER), 9301 CHAPEK ROAD, FORT BELVOIR, VA 22060-5527
US ARMY MEDICAL COMMAND, ATTN: MCFA-E (MS. FORD), 2050 WORTH RD, FORT SAM HOUSTON, TX 78234-6000
US ARMY MILITARY DISTRICT OF WASHINGTON, 103 THIRD AVE, BUILDING 42, (ANSP-IS-EV/MR. BRUMBACK), FT LESLEY J. MCNAIR, DC 20319-5058
US ARMY SURFACE DEPLOYMENT AND DISTRIBUTION COMMAND, ATTN: MTPAL-FE (MR. DOUTHIT, ROOM 11N67), HOFFMAN BLDG II, 200 STOVALL STREET, ALEXANDRIA, VA 22332-5000
US ARMY SPACE AND MISSILE DEFENSE COMMAND, ATTN: SMDC-OP, P.O. BOX 15280, ARLINGTON, VA 22215-0280
COMMANDER, US ARMY CORPS OF ENGINEERS, ATTN: CEMP-R (MR. LUBBERT), 441 G STREET NW, WASHINGTON, DC 20314
US ARMY ENVIRONMENTAL CENTER, ATTN: SFIM-AEC-CD (COL DE PAZ), ABERDEEN PROVING GROUND, MD 21010-5401
OFFICE OF THE DIRECTOR, US ARMY INSTALLATION MANAGEMENT AGENCY, ATTN: SFIM-AR-Z (COL ALDRIDGE), 2511 JEFFERSON DAVIS HIGHWAY, TAYLOR BLDG (NC3), ARLINGTON, VA 22202

CF:
ASSISTANT SECRETARY OF THE ARMY (FINANCIAL MANAGEMENT AND COMPTROLLER), ATTN: OASA(FM&C) (MR. PETER LANGEVIN), 109 ARMY PENTAGON, WASHINGTON, D.C. 20310-0109

INSTALLATION SUPPORT MANAGEMENT AGENCY ATLANTA FIELD OFFICE, ATTN: DAIM-BO-A (MR. VICTOR BONILLA), BLDG. 701, FT MCPHERSON, GA 30330-000
(CONT)

DAIM-ZA
SUBJECT: IMPROVING THE REPORTING OF ENVIRONMENTAL LIABILITIES

CF: (CONT)
INSTALLATION SUPPORT MANAGEMENT AGENCY NCR FIELD OFFICE, ATTN: DAIM-BO-N (MS ELAINE ANDEREGG/MR. JAMES DAVIDSON), 5001 EISENHOWER AVENUE, ALEXANDRIA, VA 22333-0001

INSTALLATION SUPPORT MANAGEMENT AGENCY HAMPTON FIELD OFFICE, ATTN: DAIM-BO-H (MR THOMAS LEDERLE), BLDG. 105A, FORT MONROE, VA 23651-5000

DIRECTOR, US ARMY CHEMICAL MATERIALS AGENCY, ATTN: AMSCM-RDE (MR. DREW LYLE), 5183 BLACKHAWK ROAD, BLDG E4517, ABERDEEN PROVING GROUND, MD 21010-5424

HQ, US ARMY TANK-AUTOMOTIVE & ARMAMENTS COMMAND, G-3/G-4, ATTN: AMSTA-CS-N/MAILSTOP-412 (MS. KATHLEEN DERBIN), 6501 E. 11 MILE ROAD, WARREN, MI 48397-5000
HQ, US ARMY JOINT MUNITIONS COMMAND, G4, ENVIRONMENTAL FACILITIES DIVISION, ATTN: SFSJM-LGE (MR. BILLY MURPHY), 1 ROCK ISLAND ARSENAL, ROCK ISLAND, IL 61299-6000
HQ, US ARMY AVIATION & MISSILE COMMAND, ATTN AMSAM-EN (MR. RON HAGLER) BLDG 111, REDSTONE ARSENAL, AL 35898-5000
HQ, US ARMY COMMUNICATIONS-ELECTRONICS COMMAND, ATTN: AMSEL-LE (MR. JOE COCCO), BUILDING 1209 1E, FORT MONMOUTH, NJ 07703-5000
US ARMY RESERVE COMMAND ATTN: AFRC-ENV (MR. GRICIUS), 1401 DESHLER STREET SW, FORT MCPHERSON, GA 30330-2000

REGIONAL DIRECTOR:
IMA KOREA REGION, ATTN: SFIM-KO-E (MR. WILLIAM DONNELLY), PSC 303 BOX 45, APO AP 96205
IMA EUROPEAN REGION, ATTN: SFIM-EU-E (MS. DEBRA DALE), UNIT 29353 BOX 200, APO AE 09014
IMA NORTHEAST REGION, ATTN: SFIM-NE-E (MS. DEBORA RICHERT), BUILDING 5B NORTH GATE RD, FORT MONROE, VA 23651-1047
IMA NORTHWEST REGION, ATTN: SFIM-NW-E (MR GARY BADTRAM), 1 ROCK ISLAND ARSENAL, ROCK ISLAND, IL 61299-6200
IMA PACIFIC REGION, ATTN: SFIM-PA-E (MR. MICHAEL HARADA), 104 H PLACE, FORT SHAFTER, HI 96858-5520
IMA SOUTHEAST REGION, ATTN: (SFIM-SE-E/MR. RUDY STINE), 1593 HARDEE AVE S.W., BLDG 171, FORT MCPHERSON, GA 30330-1057
IMA SOUTHWEST REGION, ATTN: (SFIM-SW-E/MR. GREGG CHISLETT), 1204 STANLEY RD, STE 9, FORT SAM HOUSTON, TX 78234-5009

Responsibilities for Cost-to-Complete and Financial Liabilities

ACTIONS	Army DERP Active / Excess Installations	Base Realignment and Closure and Excess Installations CC	Formerly Used Defense Sites	Compliance-Related Cleanup (Special Installations)
Develop CTC Estimates	Installation RPM (AEC for NGB)	BRAC Environmental Coordinator	USACE District Project Manager	Installation CC - RPM
Supervisory Review	DPW / BRAC Fld Ofc Env Lead *	BRAC Field Office Env Lead	USACE District Program Manager	Dir. of Public Works or Equivalent
Quality Control	USAEC Cleanup Division **	USAEC Cleanup Division	USACE District QC Team	MSC or MACOM Envmtl Chief
Quality Assurance	USAEC Cleanup PM Branch	USAEC Cleanup PM Branch	USACE Division FUDS Mgr ***	USAEC Cleanup PM Branch
Approval	USAEC Program Manager	BRAC Division Env & Rsce Mgr	USACE HQ FUDS Program Mgr	MACOM Environmental Chief
Validation	ACSIM Dir Envir. Prgm	ACSIM BRAC Division Chief	ACSIM Dir Envir. Prgm	MACOM Envir. Chief / Acq PM

ACTIONS	Compliance-Related Cleanup (IMA CONUS and OCONUS)	Compliance-Related Cleanup (NGB)	Massachusetts Military Rsvn Compliance-Related Cleanup (AEC/NGB)	Compliance-Related Cleanup (USAR RRC/Installation)
Develop CTC Estimates	Installation CC - RPM	Installation CC - RPM	PM MMR	Installation/RRC CC - RPM
Supervisory Review	DPW/Dep Garrison Cmdr	Facilities Mgt Officer / Ch of Staff	USAEC Deputy to the Cmdr	DCS Engineer/DPW
Quality Control	IMA Region Env Chief	NGB Envir. Prog. Div. Cleanup Br.	USAEC Cleanup Division	IMA ARD Envir. Chief
Quality Assurance	USAEC Cleanup PM Branch	USAEC Cleanup PM Branch	USAEC Cleanup PM Branch	USAEC Cleanup PM Branch
Approval	IMA Environmental Chief	NGB Environmental Chief	NGB Environmental Chief	IMA Environmental Chief
Validation	ACSIM Dir Envir. Prgm	ACSIM Dir Envir. Prgm	ACSIM Dir Envir. Prgm	ACSIM Dir Envir. Prgm

ACTION DESCRIPTIONS

Develop Cost-to-Complete Estimates: Staff prepares site level cost to complete estimates using RACER or engineered estimates. Estimates must be auditable. Data is entered into database of record (i.e. AEDB-R, AEDB-CC, FUDSMIS).
Supervisory Review: Supervisor of staff preparing CTC estimate must review the estimate and sign off on the Supervisory Review Checklist. * Dep. Environmental Chief for NGB.
Quality Control: Reviews estimates for completeness. Checks if assumptions are valid. ** Includes NGB AEC Liaison for NGB installations.
Quality Assurance: Randomly selects certain estimates for thorough review. Checks to see if estimates are auditable. *** May use Center of Expertise.
Approval: Cleanup Program Managers have to approve estimates used for reporting their program's environmental liabilities.
Validation: ACSIM collects and validates environmental liabilites submitted by each cleanup program. Checks to see if all necessary program aspects are identified and reported.

Enclosure

GLOSSARY
Acronyms and Abbreviations.

Acronym	Meaning
ACSIM	Assistant Chief of Staff for Installation Management
AECS	Army Environmental Cleanup Strategy
AR	Army Regulation
ARIMS	Army Records Information Management System
ARC	Annual Report to Congress
ASA(I&E)	Assistant Secretary of the Army for Installations, and Environment
AWP	Annual Workplan
BD/DR	Building Demolition and Debris Removal
BDI	Budget Development Instructions
BES	Budget Estimate Submission
BY	Budget Year
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFO	Chief Financial Officer
CFR	Code of Federal Regulations
CON/HTRW	Containerized/Hazardous, Toxic, and Radioactive Waste
CTC	Cost-to-Complete
CX	Center of Expertise
CY	Current Year
DA	Department of the Army
DASA (ESOH)	Deputy Assistant Secretary of the Army for Environment, Safety, and Occupational Health
DD	Decision Document
DEP	Director of Environmental Programs
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DoDI	Department of Defense Instruction
DUSD(I&E)	Deputy Under Secretary of Defense for Installation and Environmental
DUSD(ES/CL)	Deputy Under Secretary of Defense for Environmental Safety and Cleanup
EE/CA	Engineering Evaluation and Cost Analysis
ELR	Environmental Liability Report
EO	Executive Order
ER	Engineer Regulation
ER	Environmental Restoration
ER-FUDS	Environmental Restoration – Formerly Used Defense Sites
FFID	Federal Facility Identification
FFMIA	Federal Financial Management Improvement Act
FMR	Financial Management Regulation

Acronym	Meaning
FPMI	FUDS Program Management Indicators
FUDS	Formerly Used Defense Sites
FUDSMIS	Formerly Used Defense Sites Management Information System
FY	Fiscal Year
FYDP	Future Years Defense Plan
GMRA	Government Management Reform Act
GPRA	Government Performance and Results Act
HQ	Headquarters
HQDA	Headquarters, Department of the Army
HQUSACE	Headquarters, USACE
HTRW	Hazardous, Toxic, and Radioactive Waste
HTRW CX	HTRW Center of Expertise
IGE	Independent Government Estimate
INPR	Inventory Project Report
IR	Installation Restoration
IRA	Interim Removal Action
IRP	Installation Restoration Program
LCP	Life-Cycle Plan
LTM	Long-Term Management
M&S	Management and Support
MC	Munitions Constituents
MCACES	Micro Computer Aided Cost Engineering System
MEC	Munitions and Explosives of Concern
MM	Military Munitions
MM CX	Military Munitions Center of Expertise
MMRP	Military Munitions Response Program
MoM	Measures of Merit
NCP	National Oil and Hazardous Substance Pollution Contingency Plan (a.k.a., National Contingency Plan)
NDAI	No DoD Action Indicated
NPL	National Priority List
NR	Not Required
NTCRA	Non-Time-Critical Removal Action
O&M	Operations and Maintenance
OADUSD (CL)	Office of the Assistant Deputy Under Secretary of Defense (Environmental Cleanup)
ODEP	Office of the Director of Environmental Programs
ODUSD(I&E)	Office of the Deputy Under Secretary of Defense (Installations and Environment)
OMB	Office of Management and Budget
OSD	Office of the Secretary of Defense
PA	Preliminary Assessment
PCO	Project Closeout

Acronym	Meaning
PDI	Program Development Instruction
PDT	Project Delivery Team
PEAR	Project Execution Accounting Report
PgDT	Program Delivery Team
PgM	Program Manager
PIRS	Project Information Retrieval System
PL	Public Law
PM	Project Manager
PMP	Project Management Plan
PN	PRP Negotiations
POC	Point of Contact
POM	Program Objective Memorandum
PP	Proposed Plan
PP&E	Property, Plant, and Equipment
PPBES	Planning, Programming, Budgeting, Execution System
PRB	Project Review Board
PRESBUD	President's Budget
PRP	Potentially Responsible Party
QA	Quality Assurance
QC	Quality Control
QMP	Quality Management Plan
QSM	Quality System Manager
RA-C	Remedial Action Construction
RACER	Remedial Action Cost Engineering and Requirements
RA-O	Remedial Action Operation
RC	Response Complete
RCRA	Resource Conservation and Recovery Act of 1976
RD	Remedial/Removal Design
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RIP	Remedy-in-Place
RMIS	DoD Restoration Management Information System
ROD	Record of Decision
RmA-C	Removal Action – Construction
RmD	Removal Design
S&A	Supervision and Administration
SAF	Subject to Availability of Funds
SFFAS	Statement of Federal Financial Accounting Standards
SI	Site Inspection
TAPP	Technical Assistance for Public Participation

Acronym	Meaning
TCRA	Time-Critical Removal Action
TRC	Technical Review Committee
TSCA	Toxic Substances Control Act
UPB	Unit Price Book
USACE	U.S. Army Corps of Engineers
USC	United States Code
VV&A	Verification, Validation, and Accreditation

Terms.

Budget Estimate Submission (BES).
This is each service's 2-year budget proposal based on PDM. The first two budget years of the POM are the service's budget estimate submission, although all other POM years' fiscal data are summarized and included.

Budget Year (BY) Annual Workplan (AWP).
This is CEMP-DE's draft work directive for BY execution. The draft quarterly obligation or execution plan of the PRESBUD (BY program of the Future Years Defense Plans [FYDP]) is the initial draft BY AWP. This BY AWP will be updated each time the POM and BES are updated. Upon HQDA approval in October after Congressional authorization and appropriation of the PB, this becomes the Current Year (CY) annual workplan.

Center of Expertise (CX).
A CX is a USACE organization that has been approved by HQUSACE as having a unique or exceptional technical capability in a specialized subject area that is critical to other USACE commands. These services may be reimbursable or centrally funded.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
Congress enacted CERCLA, commonly known as Superfund, on 11 December 1980. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.

Cost-to-Complete (CTC).
This is an estimate of current and future costs of a project using the appropriate cost-to-complete software, such as RACER or MCACES.

Cost Recovery.
Cost recovery involves money received from private parties to compensate DoD for its costs in response action activities for which the private party bears some responsibility. Cost recovery amounts involve completed response action activities and are available for redeposit to the ER-FUDS account for use on other FUDS projects.

Current Liability.
These are liabilities incurred that will be covered by available budgetary resources (i.e., current year and six prior years) encompassing not only new budget authority but also other resources available to cover liabilities for specified purposes in a given year which includes unliquidated obligations."

Current Year (CY) Annual Workplan (AWP).
This is CEMP-DE's official work directive based on the CY appropriated budget for Divisions and Districts to execute. It consists of all CY line items in the official FYDP.

Decision Document.
The Department of Defense has adopted the term Decision Document for the documentation of remedial action (RA) decisions at non-National Priorities List (NPL) FUDS Properties. The decision document shall address the following: Purpose, Site Risk, Remedial Alternatives, Public/Community Involvement, Declaration, and Approval and Signature. A Decision Document for sites not covered by an interagency agreement or Federal facility agreement is still required to follow a CERCLA response. All Decision Documents will be maintained in the FUDS Property/Project Administrative Record file. An Action Memorandum is the decision document for a removal response action.

Defense Environmental Restoration Program (DERP).
Congressionally authorized in 1986, DERP promotes and coordinates efforts for the evaluation and cleanup of contamination at Department of Defense installations and Formerly Used Defense Sites. (10 USC 2701 et. seq.)

Determination of Eligibility.
This is an activity conducted by USACE exclusively to determine if a property and project are eligible under the FUDS Program. Information gathered during the determination of eligibility, along with recommendations for further action, if appropriate, is reported in the Inventory Project Report (INPR).

DoD Goals for the DERP.
Formerly called the Defense Planning Guidance (DPG), the DoD Goals for DERP contains the Secretary of Defense's long-range goals and fiscal guidance. It is a major link between Planning and Programming.

DoD's Updated BES and the President's Budget (PRESBUD).
BES will be updated based on the Program Budget Decision. The first budget year of the updated BES is the PRESBUD. OMB assembles the one-year PRESBUD to be submitted to Congress.

Engineering Evaluation/Cost Analysis (EE/CA).
An EE/CA is prepared for all non-time-critical removal actions as required by Section 300.415(b)(4)(i) of the NCP. The goals of the EE/CA are to identify the extent of a hazard, to identify the objectives of the removal action, and to analyze the various alternatives that may be used to satisfy these objectives for cost, effectiveness, and implementability. (EP 75-1-3)

Formerly Used Defense Sites (FUDS) Property.

A FUDS is defined as a facility or site (property) that was under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances. By the Department of Defense Environmental Restoration Program (DERP) policy, the FUDS program is limited to those real properties that were transferred from DoD control prior to 17 October 1986. FUDS properties can be located within the 50 States, District of Columbia, Territories, Commonwealths, and possessions of the United States.

FUDS Accrued Environmental Restoration Liability.

Cost to conduct environmental restoration activities to correct past contamination problems at Formerly Used Defense Sites properties.

FUDS Project.

A FUDS Project is a unique name given to an area of an eligible FUDS property containing one or more releases or threatened releases of a similar response nature, treated as a discrete entity or consolidated grouping for response purposes. This may include buildings, structures, impoundments, landfills, storage containers, or other areas where hazardous substance are or have come to be located, including FUDS eligible unsafe buildings or debris. Projects are categorized by actions described under installation restoration (HTRW and CON/HTRW), military munitions response program, or building demolition/debris removal. An eligible FUDS Property may have more than one project.

FUDSMIS.

The FUDS Management Information System (MIS) is the corporate information system that supports planning, programming, budgeting, annual workplan development, execution, and reporting requirements for the FUDS program.

Future Years Defense Plans (FYDP).

This contains executable project actions to match available dollars provided in the POM for the current year and subsequent six program years. The FYDP is a series of proposed annual funded workplans that contains all eligible projects and all phases of work identified by Divisions and Districts for all eligible FUDS properties. It is also DoD's master plan database. It contains resourcing decisions made through PPBS. DoD uses it for internal analysis and Congress uses it during review of budget requests. FYDP is a continuous process and is constantly updated based on POM Exhibits, BES, and PRESBUD. However, regularly scheduled updates occur three times during each PPBS cycle:

- After the submission of the services' POM.
- After the submission of the services' BES.
- After the President submits his budget to Congress reflecting any final adjustments made to the DoD budget.

Ineligible Properties.

These are properties that are ineligible for action under the FUDS program. See Chapter 3 for specifics.

Inventory Project Report (INPR).
The report resulting from the determination of FUDS eligibility. The INPR includes data as well as a recommendation for further action and guides investigators through further site studies. The INPR documents whether DoD is responsible for contamination at a FUDS.

Liability.
A probable and measurable outflow of resources arising from past transactions or events. (*DoD Management Guidance for the DERP*)

Life Cycle Cost (LCC).
CTC plus prior year actual expenditure plus prior year unliquidated obligations.

Life-Cycle Plan (LCP).
The LCP contains all historical data (FY84 through prior year) and CTC plan (CY through Time-to-Complete [TTC]). The official LCP contains the POM balanced FYDP.

Long-Term Management (LTM).
Term used for environmental monitoring, review of site conditions, and maintenance of a remedial action to ensure continued protection as designed once a FUDS achieves Response Complete. Examples of LTM include landfill cap maintenance, leachate disposal, fence monitoring and repair, 5-year review execution, and land use control enforcement. This term should be used until no further environmental restoration response actions are appropriate or anticipated. (*DoD Management Guidance for the DERP*)

Military Munitions.
All ammunition products and components produced for or used by the U armed forces for national defense and security, including ammunition products or components under the control of the Department of Defense, the Coast Guard, the Department of Energy, and the National Guard. The term includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes and incendiaries, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof. The term does not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components, except that the term does include non-nuclear components of nuclear devices that are managed under the nuclear weapons program of the Department of Energy after all required sanitization operations under the *Atomic Energy Act* of 1954 (42 USC 2011, et seq.) have been completed. [*10 USC 2710(e)(3)(A)*]

Munitions and Explosives of Concern (MEC).
This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks, means:

- Unexploded ordnance (UXO), as defined in 10 USC 2710 (e)(9);
- Discarded Military Munitions (DMM), as defined in 10 USC 2710 (e)(2); or
- Munitions constituents (e.g., TNT, RDX) present in high enough concentrations to pose an explosive hazard.

Munitions Constituents (MC).
Any materials originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions. [10 USC 2710(e)(4)]

National Oil and Hazardous Substance Pollution Contingency Plan (NCP).
Revised in 1990, the NCP provides the regulatory framework for responses under CERCLA. The NCP designates the Department of Defense as the removal response authority for ordnance and explosives hazards.

No DoD Action Indicated (NDAI).
This is a Formerly Used Defense Sites (FUDS) where USACE has made a programmatic decision that the property or project conforms to the following:

- It is not eligible for consideration under the FUDS program.
- It is categorically excluded from the FUDS program
- The hazards found were not the result of DoD actions on or before 17 October 1986, pose no threat to human health or safety or the environment and, no additional environmental restoration activities are required.

Non-current Liabilities
These include liabilities incurred for which revenues or other sources of funds necessary to pay the liabilities have not been made available through congressional appropriations or current earnings of the reporting entity (i.e., non-current liability equals to the program CTC minus the current-year program funding).

Non-Time-Critical Removal Action (NTCRA).
A NTCRA is an action initiated in response to a release or threat of a release that poses a risk to human health and welfare, or the environment. Initiation of removal cleanup actions may be delayed for 6 months or more.

Planning, Programming, Budgeting, and Execution System (PPBES).
Army's system that mirrors the DoD's PPBS.

Potentially Responsible Parties (PRP).
A PRP is defined in CERCLA Section 107 as any person related to a property that is a:

- Current owner or operator.
- Past owner or operator at the time of disposal of any hazardous substance, pollutant, or contaminant.
- Person who arranges for disposal, treatment, or transport for disposal or treatment of hazardous substances.
- Transporter who has selected the site for the disposal of a hazardous substance.

Potentially Responsible Party/Hazardous, Toxic, and Radioactive Waste (PRP/HTRW) Project.
A FUDS where HTRW cleanup requirements exist and parties other than DoD are potentially responsible parties for the hazardous substances, pollutants, or contaminants.

Potentially Responsible Party/Military Munitions Response (PRP/MMRP) Project.
A FUDS where MMRP cleanup requirements exist and parties other than DoD are potentially responsible parties for disposal of the MMRP materials.

Preliminary Assessment (PA).
The Preliminary Assessment is a limited-scope investigation that collects readily available information about a project and its surrounding area. The PA is designed to distinguish, based on limited data, between sites that pose little or no threat to human health and the environment and sites that may pose a threat and require further investigation. The PA also identifies sites requiring assessment for possible emergency response actions. If the PA results in a recommendation for further investigation, a Site Inspection is performed. Refer to the EPA publication *Guidance for Performing Preliminary Assessments Under CERCLA*, September 1991, for additional information.

Program Budget Decision (PBD).
This is a comptroller driven, appropriation-oriented decision upon review and analysis of the services' BES.

Program Decision Memorandum (PDM).
This is DoD's decision document designed to provide each service feedback on how closely its POM meets the DoD Goals for the DERP and to provide each service a baseline for developing BES and PB.

Program Management.
Component of the PMBP undertaken by all USACE echelons to manage programs. It consists of the development, justification, management, defense, and execution of programs within available resources, in accordance with applicable laws, policies, and regulations, and includes accountability and performance measurements. Under program management, programs, projects, and other commitments are aggregated for oversight and direction by the organization's senior leadership. Program management takes project management to a greater level of interdependence and broadens the corporate perspectives and responsibilities.

Program Manager.
Program managers integrate program information and facilitate management. Program managers and Program Management Team members keep higher echelons of the customer's organization updated on all work USACE is performing on their behalf, and assist customers in accessing USACE resources across organizational boundaries. Program managers are responsible for making accurate program projections necessary to support workload analysis at the local, regional, and national level. (ER 5-1-11)

Program Objective Memorandum (POM).
This is the memorandum that documents each service's proposals for resource allocation for six program years to meet fiscal constraints contained in the DoD Goals for the DERP and each service's objectives.

Project Delivery Team (PDT).
The PDT is a multi-disciplined project team lead by the Project Manager with responsibility for assuring that the project stays focused, first and foremost on the public interest, and on the customer's needs and expectations, and that all work is integrated and done in accordance with a PMP and approved business and quality management processes. The PDT focuses on quality project delivery, with heavy reliance on partnering and relationship development to achieve better performance. The PDT shall consist of everyone necessary for successful development and execution of all phases of the project. The PDT will include the customers, the PM, technical experts within or outside the local USACE activity, specialists, consultants/contractors, stakeholders, representatives from other Federal and state agencies, and higher level members from Division and Headquarters who are necessary to effectively develop and deliver the project actions. The customer is an integral part of the PDT. (ER 5-1-11)

Project Execution Accounting Report (PEAR).
The PEAR contains the same financial information as the ICAR above, except it is reported at each individual project level authorized by the Funding Authorization Document (FAD).

Project File.
The body of documents that contains the rationale and justification for the selection of the response action and that supports FUDSMIS data and Cost-to-Complete estimates. It contains all documents in the Administrative Record file as well as additional supporting documentation not included in the Administrative Record file due to issues such as privacy, financial confidentiality, etc.

Project Management.
The application of knowledge, skills, tools, and techniques to project activities to meet or exceed defined expectations.

Project Management Business Process (PMBP).
The fundamental USACE business process used to deliver quality projects. It reflects the USACE corporate commitment to provide "customer service" that is inclusive, seamless, flexible, effective, and efficient. It embodies communication, leadership, systematic and coordinated management, teamwork, partnering, effective balancing of competing demands, and primary accountability for the life cycle of a project.

Project Management Plan (PMP) (PgMP for Programs).
A living document used to define expected outcomes and guide execution and control of project (or program) actions. Primary uses of the PMP are to facilitate communication among participants, assign responsibilities, define assumptions, and document decisions. Establishes baseline plans for scope, cost, schedule, safety, and quality objectives against which performance can be measured, and to adjust these plans as actual performance dictates. The project delivery team develops the PMP.

Project Manager (PM).
The PM is responsible for management and leadership of a project during its entire life cycle, even when more than one USACE District or activity is involved. The PM will generally reside at the geographic District but can be elsewhere as needed. The PM and PDT are responsible and accountable for ensuring the team takes effective, coordinated actions to deliver the completed project according to the PMP. The PM manages all project resources, information and commitments, and leads and facilitates the PDT towards effective development and execution of project actions. (ER 5-1-11)

Quality Assurance (QA).
An integrated system of management activities involving planning, implementation, assessment, reporting, and quality improvement to ensure that a process, item, or service is of the type and quality needed to meet project requirements defined in the PMP.

Quality Control (QC).
The overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirements established in the PMP; operational techniques and activities that are used to fulfill requirements for quality.

Quality Management.
Processes required to ensure that the actions at the project would satisfy the needs and objectives for which it was undertaken, consisting of quality planning, quality assurance, quality control, and quality improvement.

Quality Management Plan (QMP).
A document that describes a quality system in terms of the organizational structure, policy and procedures, functional responsibilities of management and staff, lines of authority, and required interfaces for those planning, implementing, documenting, and assessing all activities conducted.

Quality System Manager (QSM).
The FUDS Program Manager at a geographic Military Division or District designated as the principal manager within the organization having management oversight and responsibilities for quality management process of the FUDS program at that level.

Remedial or Remedial Action (RA).
Those actions consistent with permanent remedy taken instead of or in addition to removal actions in the event of a release or threatened release of a hazardous substance into the environment, to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health, welfare or the environment. The term includes, but is not limited to, such actions at the location of the release as storage; confinement; perimeter protection using dikes, trenches, or ditches; clay cover; neutralization; cleanup of released hazardous substances and associated contaminated materials; recycling or reuse; diversion; destruction; segregation of reactive wastes; dredging or excavations; repair or replacement of leaking containers; collection of leachate and runoff; on-site treatment or incineration; provision of alternative water supplies; and any monitoring reasonably required to assure that such actions protect the public health, welfare, and the environment. The term includes the costs of permanent relocation of residents and businesses and community facilities where the President determines

that, alone or in combination with other measures, such relocation is more cost-effective and environmentally preferable to the transportation, storage, treatment, destruction, or secure disposition off-site of hazardous substances, or may otherwise be necessary to protect the public health or welfare. The term includes off-site transport and off-site storage, treatment, destruction, or secure disposition of hazardous substances and associated contaminated materials. (*DoD Management Guidance for the DERP*)

Remedial Action-Construction (RA-C).
The period during which the final remedy is being put in place. The end date signifies that the construction is complete, all testing has been accomplished, and that the remedy will function properly. (*DoD Management Guidance for the DERP*)

Remedial Action-Operations (RA-O).
The period during which the remedy is in place and operating to achieve the cleanup objective identified in the Record of Decision or equivalent agreement. Any system operation or monitoring requirements during this time shall be termed RA-O. (*DoD Management Guidance for the DERP*)

Remedial Design (RD).
A phase of remedial action that follows the remedial investigation/feasibility study and includes development of engineering drawings and specifications for a site cleanup.

Remedial Investigation/Feasibility Study (RI/FS).
An in-depth study designed to gather the data necessary to determine the nature and extent of known contamination at a site, assess risk to human health and the environment, and establish criteria for cleaning up the site. During the FS, the RI data are analyzed and remedial alternatives are identified. The FS serves as the mechanism for the development, screening, and detailed evaluation of alternative remedial actions.

Remedy In Place (RIP).
Designation that a final remedial action has been constructed and implemented and is operating as planned in the remedial design. An example of a remedy in place is a pump-and-treat system that is installed, is operating as designed, and will continue to operate until cleanup levels have been attained. Because operation of the remedy is ongoing, the site cannot be considered Response Complete. (*DoD Management Guidance for the DERP*)

Removal or Removal Action.
The cleanup or removal of released hazardous substances from the environment. Such actions may be taken in the event of the threat of release of hazardous substances into the environment, such actions as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances, the disposal of removed material, or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release. The term includes, in addition, without being limited to, security fencing or other measures to limit access, provision of alternative water supplies, temporary evacuation and housing of threatened individuals not otherwise provided for, action taken under section 9604(b), and any emergency assistance which may be provided under the *Disaster Relief and Emergency Assistance Act* [42 USC 5121 et seq.] The requirements for removal actions are addressed in 40 CFR §§300.410 and 300.415. The three types of removals are emergency, time-critical, and non time-critical removals. (*DoD Management Guidance for the DERP*)

Resource Conservation and Recovery Act (RCRA).
Enacted in 1976, RCRA promotes the protection of health and the environment. It regulates waste generation, treatment, storage, transportation, and disposal for facilities currently in operation.

Response Action.
A CERCLA-authorized action involving either a short-term removal action or a long-term removal response. This may include, but is not limited to, removing hazardous materials, containing or treating the waste on-site, and identifying and removing the sources of ground water contamination and halting further migration of contaminants.

Response Complete (RC).
The remedy is in place and required remedial action-operations (RA-O) have been completed. If there is no RA-O phase, then the remedial action-construction end date will also be the RC date. (*DoD Management Guidance for the DERP*)

Restoration Advisory Board (RAB).
A Restoration Advisory Board (RAB) is a forum for the discussion and exchange of information between representatives of the Department of Defense (DoD), regulators, state and local governments, tribal governments, and the affected community. RABs provide an opportunity for stakeholders to have a voice and actively participate in the review of technical documents, to review restoration progress, and to provide individual advice to decision makers regarding restoration activities at FUDS Properties and Projects.

Site Inspection (SI).
Activities undertaken to determine whether there is a release or potential release and the nature of associated threats. The purpose is to augment the data collected in the PA and to generate, if necessary, sampling and other field data to determine the presence, type, distribution, density, and location of hazardous substances or military munitions.

Technical Assistance for Public Participation (TAPP).
The TAPP is a DoD program that allows USACE to contract for independent technical assistance to Restoration Advisory Boards and Technical Review Committees based on community member requests for assistance in interpreting scientific and engineering issues related to FUDS property restoration activities.

Time-Critical Removal Action (TCRA).
A TCRA is a response to a release or threat of release that poses such a risk to public health (serious injury or death), or the environment, that clean up or stabilization actions must be initiated within 6 months.